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THE CANADIAN ILLUSTRATED MONTHLY

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VOL. 6

MONTREAL

MARCH 1921

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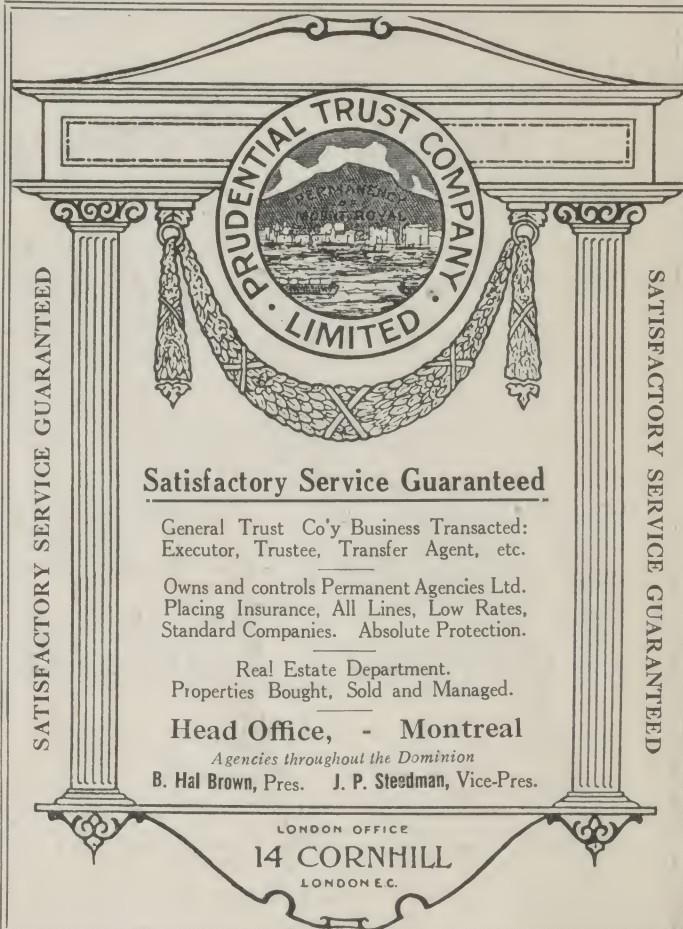
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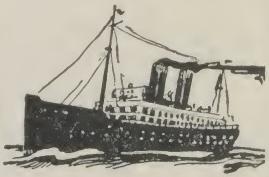
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THE CANADIAN ILLUSTRATED MONTHLY



Vol. VI.

MONTREAL, MARCH, 1921

No. 1

Our Chat With You

COMMENCING with the April issue of the Magazine, we intend to inaugurate a new department devoted to Canadian development in every field. This department will be entitled, "In the Highways and Byways of Canada," and in it will appear brief, interesting articles on all kinds of Canadian topics.

Canada is a very large country, and, as it is impossible for the Editor of the publication to be everywhere at once, it is only through the co-operation of our readers that a department of this nature can be made successful. Civic pride is one of the most important assets of the successful community, and we feel sure that it is not lacking in our own readers, who are scattered from coast to coast, and that they will be only too willing to see their own sections adequately repre-

sented in a publication that we feel in all modesty is helping to promote the interest of the Dominion.

Surely in every part of the country there is some particular attraction, either scenic or industrial, that would be of general interest. If you feel incapable of doing the work yourself—the articles need not be more than two hundred words in length—then perhaps you could refer the matter to your local commercial body, or to a friend. And wherever possible, please send a good photograph or two.

Our doctrine:
To assist in the development of the

great resources of the Dominion of Canada through the dissemination of conservative information relating thereto, and to give entertainment relating thereto, refraining from discussion of religious, racial, or political questions.

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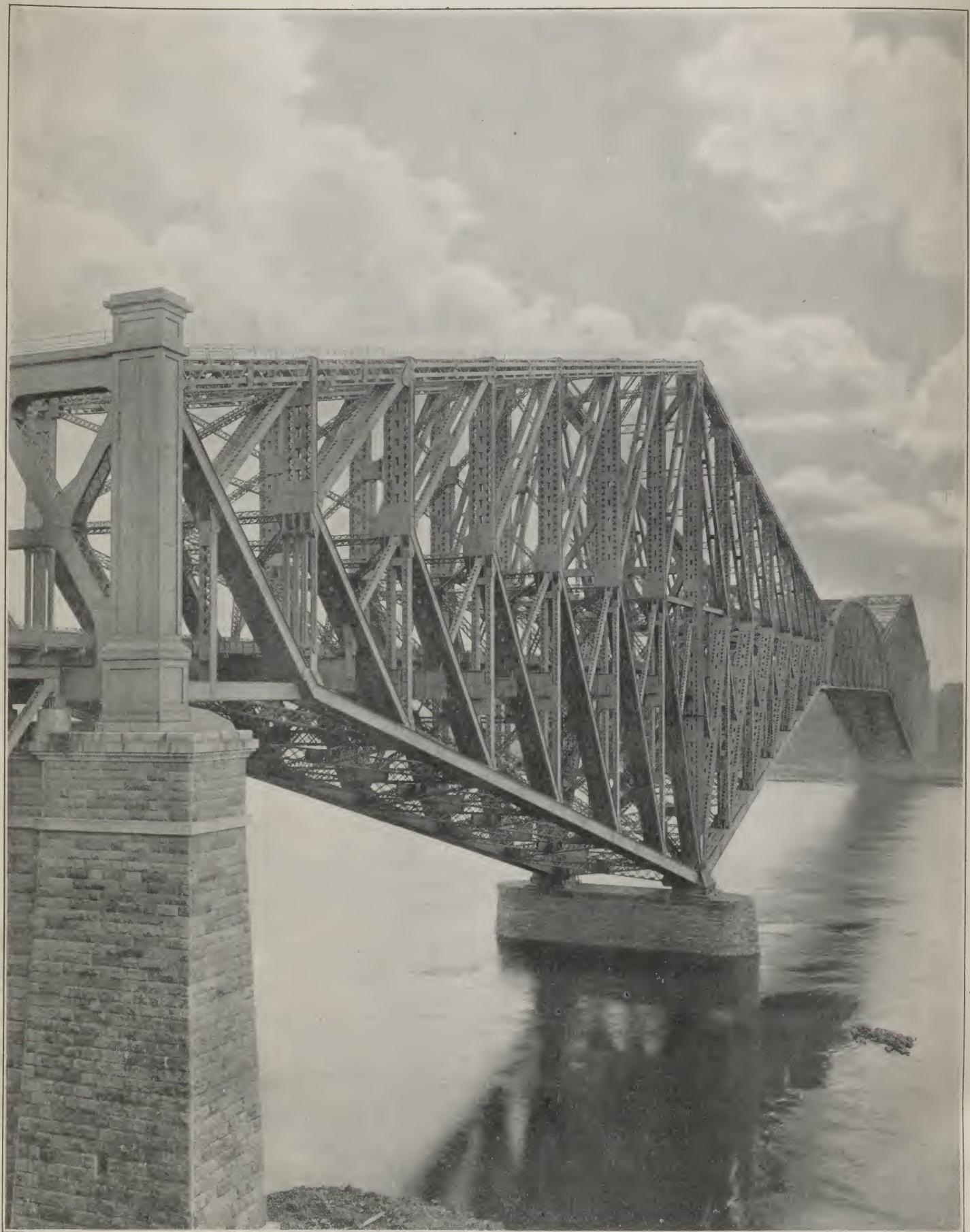
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Photograph by S. J. Hayward, Montreal

The Quebec Bridge is one of the greatest engineering achievements of the age

THE CANADIAN ILLUSTRATED MONTHLY

Vol. 6

Montreal, March, 1921

No. 1

Some Notable Canadian Railway Structures

TRANSCONTINENTAL travel in Canada now takes the tourist over some of the greatest railway bridges of their types in the world.

There are four chief types of bridges: swing, for low level crossing of streams which must be cleared periodically for navigation; cantilever, where a stream must be crossed and it is impossible to use false-work or temporary wooden scaffolding during the erection of the steel; suspension, for gorges upon whose sides heavy cables can be anchored and the bridge hung on these, and deck lattice or plate girder, where it is possible to construct piers to support the steel.

The first of Canada's large bridges to see completion was a plate girder span on steel towers, at Lethbridge, Alberta, 5,327 feet long and 307 feet high, the longest and highest viaduct

in the world, costing some \$2,000,000. Then there was opened near Montreal, Quebec, a swing bridge over the Lachine canal, having a double tracked plate girder swing span of 240 feet, the longest of its kind in the world. And the last, completed only this year, the longest cantilever span in the world, bridging the St. Lawrence River in the Province of Quebec.

Stretching across the northern part of the continent of America from the Atlantic to the Pacific, curving around the rocky shores of Lake Superior, crossing the prairies and the prairie rivers, climbing or tunneling the great walls of the Rockies and the Selkirks,

lies the narrow steel pathway of the Canadian Pacific Railway. Thirty years ago it was the pioneer track of civilization, nosing its way into the unknown West. To-day it is the great highway of western colonization and of the western tourist trek which has grown so deservedly popular.

As one lolls back in the luxurious arm-chair of the Imperial Limited, he scarcely gives a thought to the vastness of the enterprise, the greatness of the executive, the enormity of the labor, and the cost of the road of steel over which he is speeding. Railway construction is the heaviest kind of work. Nature and all her allies seemed bent on preventing the building of this path of commerce. The first engineers over the route were pioneers in every sense of the word. They met and overcame obstacles that would have ordinarily been considered insurmountable.



Photograph, courtesy Canadian Pacific Railway

The Lethbridge Viaduct, over the Belly River, Alta., approximately a mile in length and 300 feet high, is one of the Canadian Pacific Railway's many great engineering undertakings

178116



Photograph, courtesy Canadian Pacific Railway
This arch bridge over Surprise Creek Glacier is typical of the many structures along the line of the Canadian Pacific Railway in the Rocky Mountains

Before this great railway constructed a viaduct across the Belly River at Lethbridge in Southern Alberta, the west-bound train on the Crow's Nest branch, zigzagging across sloughs, wiggling link by link like a measuring worm around deep-cut ravines, crawled across twenty wooden bridges in the St. Mary's River bottom ere it reached the Blood Reserve of the Blackfeet Indians. The traveller peering through the coach window at the browned hills to the north and heaving sea of prairie to the south, feels that civilization is receding farther and farther rearward, and that the fenceless fields

of the last west have been reached. An owl flops up from a knoll by the roadside, and buzzards and eagles are litling overhead in a sort of dreary enjoyment of desolation. A lone coyote is retreating beyond the hills, and equines of nondescript breeding, with patches of white and brown for coloring, are feeding at intervals on the prairie grass. Indian encampments, with blanketed braves and red-skirted squaws lounging against the dirty tepees only increase the impression of utter primitiveness.

Yet this is the environment of one of the wonders of the world. It is here that the Canadian Pacific Rail-

way has constructed a bridge, the combined dimensions of which make it the greatest in the world.

Up till 1894, Lethbridge City was the western terminus of a narrow gauge railway between that city and Medicine Hat. In 1897 this line was taken over by the Canadian Pacific Railway and made a part of the Crow's Nest branch. Lethbridge was then reached by a spur of $1\frac{1}{2}$ miles, making the total distance from Lethbridge to Macleod $38\frac{1}{2}$ miles. The line had curves as sharp as 7 degrees (819 feet radius) and an actual grade of 1 per cent. (52.8 feet per mile). Only two streams were crossed, but on low levels, requiring 18 other trestles and bridges across the mouths of coulees and ravines which were tributary to the main gorge. The aggregate length of these bridges was 12,063 feet or 2.8 miles, and the lumber required for their construction measured 15,000,-000 feet board measure. One of them was 2,933 feet long and a number were over 100 feet high. The earth work was heavy, and during the spring and high-water season required constant watching.

If this line were to be maintained, these bridges would require to have been rebuilt at an estimated cost of \$1,065,000. It was decided to build a viaduct over the Belly River, 1 mile and 47 feet long, and 307 feet high, making the distance from Lethbridge to Macleod $31\frac{3}{4}$ miles with a grade of 0.4 per cent, and at a cost of \$2,048,700. The design chosen was a plate girder carried on rigidly braced riveted steel towers. This type was selected because, considering the great height of the structure and the difficulty of erecting false work owing to prevailing high winds in Southern Alberta, it would be erected more easily.



Photograph, courtesy Canadian Pacific Railway
The Canadian Pacific Bridge across the St. Lawrence River at Lachine, Que.

Many difficulties were encountered in the erection of the foundations of concrete. Extreme floods in the spring of construction caused the water in the Belly River to rise a foot higher than ever before. This submerged the coffer-dams, deposited enough silt to fill them, and carried away some of the contractors' plant.

One of the unusual machines used on this bridge was an erection traveller, built entirely of steel, and capable of lifting to position pieces of 10 tons weight. For the purpose of signalling to various parts of the main traveller, a system of telephones was installed with a telephone booth placed in the middle of the assembling cage. Riveting hammers driven by compressed air were used throughout the work and approximately 328,000 rivets were used in the structure.

Actual work on the steel took just 300 working days. In one month 2,300 tons of steel was set in place and 735 lineal feet of structure completed. It required 645 cars to transport the steel actually used in the erection of the bridge. Contractors' plant required 40 cars more, and additional cars for various materials would bring the total up to 1,000. Coal for driving the engines was taken out of one of the excavations for piers. Some 23,000 cu. yds. of excavation was made for foundations, and 17,000 cu. yds. of concrete put in. The steel

in the bridge weighed 12,200 tons, and the contractors' plant was valued at \$75,000.

Then another unique structure was added to the long list of remarkable structures of the Canadian Pacific Railway. About a night's ride from New York City is one of the engineering triumphs of the age in the new swing bridge over the Lachine canal in the province of Quebec.

From Montreal, east bound trains run on an elevated embankment to Montreal Junction, the point of divergence for lines north and south, and crossing the Lachine canal, reaches the south bank of the St. Lawrence River just above the Lachine rapids at the Indian village of Caughnawaga on what is generally called the "Short Line" between Montreal and Halifax. Forty-four miles out of Montreal the Stanbridge and St. Guillaume sub-division of the Canadian Pacific Railway is crossed, and ten miles farther on the Montreal and Boston Air Line diverges for the White Mountains and Boston.

In keeping with a general policy adopted some years ago for its entire transcontinental system, this "Short Line" has for some time been double-tracked excepting the crossing at the Lachine canal. A cantilever span had been used here, but the converging of the tracks at either end of the bridge led to frequent delays, and as

it was not advisable to double-track the existing bridge, a new bridge was decided upon. It was found possible to design a double track swing bridge in such a manner as not to decrease the waterway for traffic on the canal.

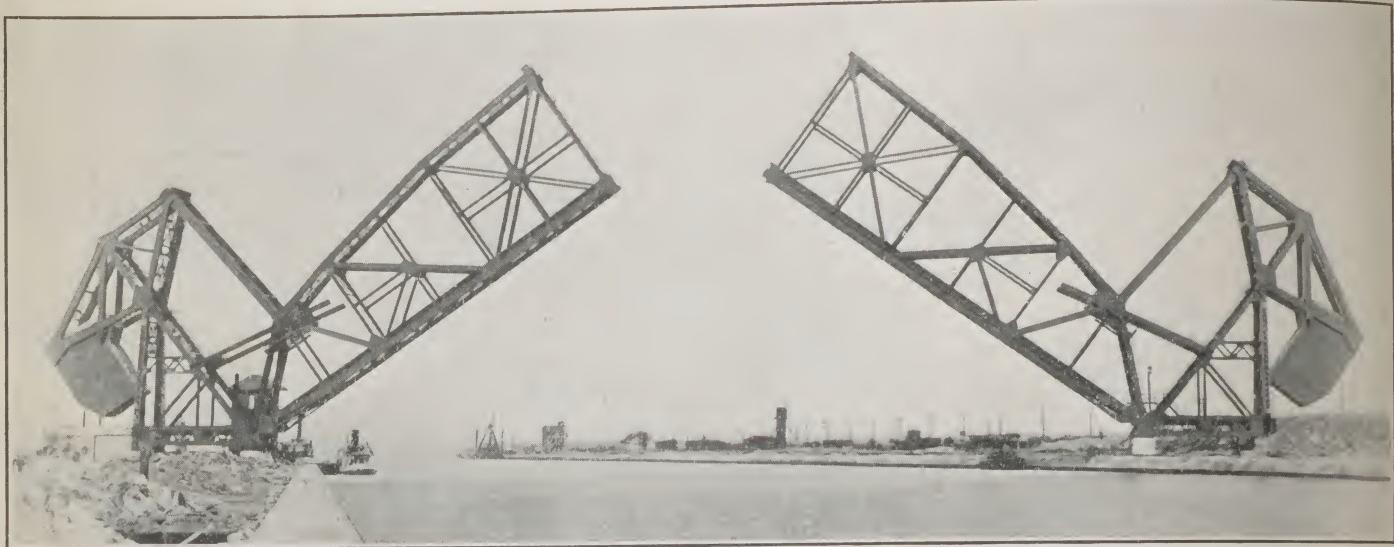
The new bridge is said to be unique in many respects and the most up-to-date on the North American Continent. The plate girder span is understood to be the longest plate girder span of its kind in the world, being 239 feet long and 13½ feet deep in the centre, reduced to 8 feet at the ends. There are four girders and the weight of each is 112 tons, and of the whole swing span, 615 tons. A 90-foot span at the south canal bank brings the total weight for the whole structure up to 758 tons. Notwithstanding the immense weight on one central pivot, this wonderful piece of mechanism is moved with the ease and apparent simplicity of the hands of a clock. From the time railway traffic is closed till the moment when the waterway is open for steamship traffic is a space of only seventy seconds.

When the bridge is open, not only do the interlocking signals at the bridge indicate "Stop", but the automatic block signals to which they are connected give a distinct indication to an approaching train that it will find the interlocked signals at "Stop" when they are reached. The bridge



Photograph by S. J. Hayward, Montreal

The Victoria Jubilee Bridge over the St. Lawrence, originally designed by Robert Stephenson, the famous English engineer, and rebuilt by Joseph Hobson, Chief Engineer of the Grand Trunk Railway System, is one of the most famous structures of the world.



Photograph, courtesy Canadian Pacific Railway

The Canadian Pacific Railway's bascule bridge at Sault Ste. Marie is the longest and only centre-locking single span structure of its type in the world

is protected by the most modern interlocking machinery, making it impossible for a train to approach the bridge before it is properly closed. The operating power is electricity carried by submarine cables under the canal. The structure is also provided with a system of lights for the protection of shipping on the canal.

Not only is the design interesting, but the rapidity of construction is also noteworthy. It was completed in less than a year, and during the work no trains were delayed by any of the operations. Considering the nature of the work and the tonnage erected, the speed of the work is certainly remarkable. The cost of the structure was \$233,000.

The project of bridging the St. Lawrence River in connection with

the National Transcontinental Railway is an old one, having been discussed as early as 1853, but a nemesis seems to have followed the plan. A law charter was obtained in 1882 but no work was begun till 1906. This structure collapsed during construction in 1907 with a loss of seventy lives and a monetary loss of \$8,000,000. The Dominion Government then decided to reconstruct the bridge, and while the big central span, weighing 5,200 tons, was being lifted to place on September 11, 1916, one corner gave way, precipitating the whole span into the river and killing fourteen men. The loss in money this time was \$500,000.

It required only a few weeks to decide that another attempt would be made to complete the structure.

Twice the hopes of success had been dashed, but new leaders were found and new ideas developed, and on the wreckage of the old there arose the finest creation of bridge-building that any generation has seen. In the new project, which was completed in a little more than a year from the second collapse, only one change was made in the specifications. In the hoisting apparatus no cast steel was used, members of rolled steel taking its place. The casting that gave way and caused the catastrophe had been thoroughly tested but had failed, and no more chances were taken with cast steel.

The Quebec bridge, the name by which this structure is commonly known, is the longest span from pier to pier among the world's bridges,



Photograph, courtesy Canadian Pacific Railway

This view shows the same bridge closed to water traffic

and expresses the largest application of the cantilever principle of any other bridge in the world. Its nearest competitor is the great Firth of Forth bridge, designed by Sir Benjamin Baker, which has a span of 1,710 feet as against 1,800 feet of the Quebec bridge. The total length from shore to shore is 3,300 feet, and the weight of steel is 65,000 tons. The bridge cost nearly \$20,000,000, and is one of the most costly in the world.

The central span, 640 feet in length, and weighing over 5,000 tons, was constructed on scows at Sillery Cove, three and a half miles from the place where it was built into the bridge, and after being floated down to the site, four days' work was required to lift it into place. A new force making for success was injected into the work, and a new element added to already dramatic scenes. Father McGuire, the Sillery Cove parish priest, on his own initiative, blessed the span and both cantilevers, and offered a special mass the Sunday before the work of floating the span began. When the span floated past Sillery church, all its bells rang out. Then the priest came out in a launch, boarded the span and rode down the river with it, spending the whole of the last day on the end platform of the north cantilever.

Regarding the completion of the work, one of the leading engineering journals of America writes:

"The seventy-fourth lift was taken very slowly, as some of the wooden working platforms had to be taken down, the clearances inspected, and the eye-bars, guided into proper position, interlaced. The seventy-fifth lift followed immediately, and locomotive cranes were run out to all four corners with pin-driving cages and pins. At the end of the stroke, the first of the eight pins was driven. The clearances were perfect and each long pin slipped through its eye-bars with a few taps. And when at four o'clock the last foreman shouted, 'Right, here!' all restraint among workers and watchers was lost. The crane whistles on the bridge picked up the men's cheers and the river boats passed the signal down to the city of Quebec, where every whistle and bell and automobile-horn was turned loose, and flags and bunting were thrown to the breeze everywhere, for Quebec realized that its dream of thirty years had come true."

Provision is made in the Quebec bridge for two railroad tracks, two street car tracks, and two vehicle roads. It will be used by the following railroads: Canadian Pacific, Grand

Trunk Pacific, Quebec Central, Intercolonial, Quebec and Lake St. John, Quebec and Saguenay, Canadian Northern, and Delaware and Hudson.

The juggling of 5,000 tons of steel attracted several thousand persons, including members of parliament, cabinet ministers, newspapermen, gathered on government vessels. American tourists crowded hundreds of other boats of all classes. Eminent American authorities on bridge building and experts in construction work, Australian ministers returning from a conference in Europe, and many others were at the scene. River traffic for ocean-going steamships was temporarily suspended.

The final work of flooring, painting, etc., has just been completed, and the greatest triumph in bridge engineering stands as a monument to the engineers who designed it, and to the St. Lawrence Bridge Company who carried the plans into effect.

There are three important bridges on the line of the Hudson's Bay Railway which extends from Le Pas north to Port Nelson, a distance of 424 miles. The first crosses the Saskatchewan River at Le Pas, and comprises four fixed spans with a swing span of some 250 feet. The second crosses the Nelson at Manitou



Photograph by W. R. Robinson, Official Photographer, Canadian National Railways
Canadian National Railway bridge across the Thompson River, near Lytton, B.C.

Rapids, is of deck cantilever type with a channel span of 305 feet and anchor spans of 109 feet. The third is at Kettle Rapids on the Nelson River, and is the most important of the three.

The Kettle Rapids Bridge is a continuous structure 1,000 feet long, having a channel span of 400 feet and two side-spans of 300 feet each. The main girders are 50 feet deep throughout with all bracing rigid. Refuge-bays for pedestrians are provided at intervals of 200 feet. The total shipping weight of steel used was 4,415,000 lbs.

The most difficult work in connection with the erection of this bridge was the construction of a double cableway for transporting materials across the river for the northern half of the bridge and for the erection of steel work. The span of the cableway was 611 feet and the towers were 120 feet high. The sag in this cableway with a maximum load of 14 tons was only 36 feet.

This bridge was completed in the summer of 1918, and the entire work was carried out without loss of life or serious accident. It stands out as the main structure in transcontinental travel via Hudson's Bay.

Among the great bridges which span the Niagara gorge is that owned

by the Grand Trunk, a splendid, single-arch, double track, double decked steel structure, which is one of the most picturesque and graceful bridges in all Canada. The new bridge stands exactly where for more than 40 years the world-renowned Suspension Bridge had spanned the gorge, and was so long regarded as the crowning triumph of engineering skill. Scarcely less wonderful than the bridge itself is the fact that its construction was completed without the interruption of traffic, the old bridge serving its regular uses until the new bridge was sufficiently advanced to allow of its removal.

From abutments on either bank springs a steel arch, spanning the gorge, with its highest point 226 feet above the water. The span between the piers is 550 feet, and a truss span at each end 115 feet long connects the arch with the bluff. The total length of the bridge with its approaches is over 1,100 feet. It has two decks or floors: the upper one, 30 feet wide, occupied by the double track of the Grand Trunk Railway; the lower, comprising a broad driveway in the centre, with foot-walks outside of all, having a total width of 57 feet. The sustaining strength of the structure is six times that of the old bridge.

Another notable bridge built by the Grand Trunk Railway is Victoria Bridge over the St. Lawrence River at Montreal, or rather Victoria Jubilee Bridge, which replaces the old Victoria Bridge opened for traffic in 1860. The new structure was built on the piers of the old without delaying traffic for more than two hours at any one time, and twenty hours during the whole construction. The new bridge was completed in 1899 and formally opened by the present King in 1901.

Victoria Jubilee Bridge is 6,592 feet long, 66 feet wide, and is set on 24 piers, with a central span of 330 feet raised 60 feet above the water. The total cost of the new bridge, which provides double track for railroad trains and driveways for vehicles on either side, was about \$2,000,000. This, of course, does not include the piers which were erected when the old bridge was built at a cost of \$7,000,000 for the whole structure.

The new bridge ranks, from an engineering standpoint, with the foremost structures of the age. The opening of the double track marked an era in the handling of traffic over the Grand Trunk Railway System. For whereas the old Victoria Bridge

Continued on page 55



Photograph by W. R. Robinson, Official Photographer, Canadian National Railways
One of the many bridges on the Edmonton-Calgary Division of the Canadian National Railways

Outside Admiralty Regulations

By Colin McKay

"WHEN I saw that little old Canadian lake boat you could have knocked me down with a handspike. I'd just spent nearly two years in the 'Queen Elizabeth,' a tidy battleship not old enough to know a chipping hammer, and before the war I'd been a big ship man, sailing out of Southampton in large, fast Atlantic and Cape liners. And here I was appointed to about the smallest and slowest craft carrying ammunition across the English Channel."

Gunner Hawkins, R.N.R., smiled as if in quiet enjoyment of a joke upon himself, and then continued his yarn:

"This little old lake boat was named the 'Arrow'—out of sarcasm, I should say. She was nearly as broad as she was long, could make eight knots or more with a fair wind, and was as comely as a flatiron. My appointment to her wasn't much of a promotion, but it meant more pay—and I needed the money. I'd been content enough in the 'Lizzie' in a way, but my wife was sickly, and navy pay don't go far. I'd doled for the officers, and done everything to turn a penny, but after two years my savings were about gone, and I was beginning to feel blue. My gun lieutenant was a young lord, a regular toff, but as fine a bloke as I ever sailed with. One day he noticed I was moping, and asked me what the trouble was, and I told him.

"I'll tell you what, Hawkins," he says, "they're putting guns on transports and merchantmen, and they'll be needing gun layers. Put in an application to be transferred, and I'll see what can be done about it. I don't want to lose you, but you will get more pay, and maybe more chances to get home. Anyway, you'll probably see more of life; the merchantmen and transports seem to be getting all the excitement in this bally war."

"So I put in my application, and I reckon that young lieutenant had influence; anyway, it went through flying, and soon I was home in Southampton on ten days' leave.

"All the same, I was sorry to leave the 'Lizzie.' She was a ship that we

all had confidence in. At the Dardanelles, when there was a job to do, it was always, 'Let "Lizzie" do it.' When they located a Turkish battery on the hills, we would steam in, try a few shots to get the range, and then fire a salvo from our twelve- and six-inch guns. When our salvo of shells hit the hillside, there was usually nothing left of the Turks' position except a cloud of dust. The Turkish batteries did not bother us. Few of their shells ever hit us, and then they seldom did more than make a dirty mark on our armor. Of course, we had some fear of the U-boats, but we always kept a good lookout.

"Well, after I had been home ten days, the officer of the Defensively Armed Merchant Ships at Southampton sent for me.

"'I've got a beautiful little ship for you,' he says. 'She's running ammunition to Havre, and you'll be able to see the missus every time you're here. I would not assign you to so fine a ship if you weren't married.'

"So down to the docks I went, and found my ship—a little old Canadian lake boat, with a six-pounder perched on her stern. When I recovered my bearings, I went aboard and hunted up the chief officer, an old man with a fatherly aspect and of gentle manner.

"'What kind of ships have you been in?' he asks.

"The battleship "Queen Elizabeth," and before that the "Mauretania," "Lusitania," "Olympic," and other big liners," says I.

"'Oh, ho!' the officer laughs. 'Well, you won't need a guide to show you over this boat. But come along.'

"And he took me into the forward house and showed me a neat little cabin.

"'This will be your hangout,' he says. 'And your mate when he comes will take the next room abaft. If you want anything, ask the steward. Make yourself at home. This isn't a liner, and we don't carry much side.' And he left me.

"A nice little cabin all to myself. I began to feel like a petty officer. I admired that neat, clean little room for some time, thinking I was in luck.

Then I went aft to have a look at my popgun, and, while I was overhauling it, a nice looking young fellow in a brand new uniform came aboard.

"'Good-day to you, gunner,' says he. 'The Defensively Armed Merchant Ships sent me to this boat. I'm your mate, I suppose.'

"'Right-oh,' says I. 'What ship are you from?'

"'Crystal Palace, London,' says he.

"'So they're training boys as young as you at Crystal Palace?' says I. 'And you don't belong to this country either? Canadian, aren't you?'

"'Yes,' says he. 'And I've seen a lot of old boats like this running up and down the lakes. I've not been a sailor, but I couldn't get in the army.'

"The young fellow was tall and clean built, and I don't think he was eighteen, but for all his boyish appearance there was something manly about him, and I knew I was going to like him. I showed him his room, and while we were yarning, the supper bell rang, and the steward came and towed us to the dining room, where three tables were set. The captain and the officers were at one, the sailors at another, and the firemen at the third. We were shown to the sailors' table. This was something new to me, seeing the captain and officers taking their meals in the same room as the crew. Of course, in the navy the lower deck has tables, but I've been in many a fine liner where neither sailors nor firemen had tables for their meals, and men often tackled their grub just as they came off watch. But here, firemen and sailors had well scrubbed faces and neat, clean clothes. And the same food was on all the tables—better food than I had ever before seen served to sailors and firemen.

"The captain was even older than the mate, a huge man with a big jolly red face. His tongue was running on at a great rate, and presently he turned to us.

"'So you're the bold gunner boys,' he says. 'Well, I bid you welcome to our family. Eat, drink, and be merry, and you'll live the longer, if old Fritz don't get you.'

"And then he began to ask us questions, firing two or three at us

before we could answer one. This old man talked like a machine gun, but I saw he couldn't help it. He just talked because he was chock-a-block full of human kindness, and had to be friendly with everybody. One minute he was asking the latest news about fireman Charlie's sick wife in Sarnia, the next he was joshing the young second mate about his love adventures with the girls of Southampton. And between whiles he spun funny yarns and roared with laughter.

"This ship beats my time," I says to the bosun. "The old man acts as if he was the father of the whole family."

"The old man is a good guy," says the bosun. "The only trouble is that he's worse than a babbling brook."

"Well, we got to work carrying ammunition to Havre, and the months fled by, and I never had a better time in my life. The old man was always good-natured and jolly, and the best of good feeling prevailed among all hands. Although the officers were free and friendly with the men, everybody was willing and respectful. My mate and I got along fine. He was quick, and anxious to learn, and before long there wasn't much I could teach him. He was a good shot with a rifle, and every chance we got we put in a lot of practice with a rifle lashed to our six-pounder. And after about three months I reckoned Jimmy my mate was likely to do as good shooting with the six-pounder as I could.

"Our little old ship took eleven or twelve hours at the best to make the run between the defence areas on either side of the channel. In fine weather, night or day, both of us kept watch during the whole channel passage, but in bad weather when we took twenty hours or more on the passage, one of us would take a nap now and then rolled up in a blanket on the gun platform. But if we had long watches in the channel we had nothing to do in port except keep the gun clean, and each trip, while we were loading, I had two or three nights at home.

"Well, we ambled back and forth across the channel, and nothing happened more exciting than occasionally being run down by some swift trooper, coming up astern in the dark. Three of them cut off our logline before they saw us, or we could show a light, rushing past us like a scalded cat, so close you could throw a biscuit aboard, and leaving us rolling in the angry wash of their wake. If one of H.M. swift troopers, driving blindly

through the night at twenty-three or twenty-four knots—and they never slowed down for rain, mist, fog, or falling snow—had hit us . . .

"But I would not have changed places with the gunners on the best of the troopers. If they only had a watch of four or five hours in the channel, they seldom got a night in port. And I calculated our little old boat was too insignificant to attract Jerry's attention when there were plenty of bigger ships in the Channel. Only two of the small ammunition ships were attacked by Jerry, and they were sunk by gun-fire when coming home light, and this before any of them had a gun of their own to answer back.

"One morning, we were homeward bound, ploughing through a thick fog upon a flat dull sea. It wasn't much use two of us keeping a lookout on the gun platform. We couldn't see seventy yards. Therefore, I had gone along to the engine room door to get a whiff of warm dry air. While I was having a yarn with one of the engineers the fog suddenly lifted, and there, broad on our starboard beam, not 2,000 yards away, was a submarine lying end on to us and low in the water. My mate gave a shout, swung the gun to starboard, set the range at 1,800 yards, and taking my job had the gun laid on the target in a brace of shakes. As I ran aft, the action signal sounded from the bridge, and on the instant my mate fired. Then quick as lightning and cool as a cucumber, he jerked open the breech, flung out the cartridge, and reloaded. Hardly had I reached the platform and grabbed the gun before he shouted 'ready again.'

"As I picked up the target in the field of the telescope, the conning tower vanished in a burst of flame. Then I got my wires on the long low whaleback already sinking in the whitening water, and fired. In a few seconds the black whaleback disappeared beneath the surface, leaving only a streak of bubbles, and then my shell flung up a fountain of water right on the edge of that patch of foam, and went skipping away over the sea.

"A shout of triumph came from the bridge, and I tore off my cap and cheered. My mate calmly reloaded the gun, and waited. I turned on him in amazement.

"'Make a noise, you beggar, make a noise,' I shouted excitedly. "'Tisn't every day you knock the conning tower clean off a U-boat.'

"'Think we finished him?' asks Jimmy.

"'Chances are that shell knocked a big hole in him,' I says. 'I think he was diving when the fog lifted, but he went down mighty quick after that shell smashed his conning tower.'

"I took another look through the gun telescope, and thought I saw bubbles still coming in near that patch of foam which I hoped marked the grave of another U-boat, but I could not be sure, and then while we waited, hoping that if he had not got his death wound he would come up to the surface again, the fog shut down thick as mud.

"We got into Southampton late that afternoon, and the old man, his big red face beaming like a beacon, swaggered off to the Naval Transport Office. When he came back he seemed a bit crestfallen.

"'Well, boys,' he says, 'I certainly spun the Defensive Naval Transport Officer a fine yarn about your little day's work, but he was about as enthusiastic as a clam. All he said was: "Very good. Send in a written report. Good day."

"The old man sent in a written report, and it was worth reading too, but the days and the weeks went by and nothing happened. For a while our little old boat attracted attention, and sailors and dock-workers pointed out Jimmy to their chums saying: 'That's the kid who sunk a U-boat the first shot.'

"But after a month or more our story about sinking a U-boat began to be treated with skepticism. Other skippers began to ask the old man what he was doing with all the prize money, and other gunners began to tell Jimmy and I weird yarns of how they, too, had sunk U-boats—two of them with a single shot, sometimes.

"The old man went to the Defensive Naval Transport Officer in high dudgeon, demanding prompt action on our claim for prize money.

"'If there is no reply in two weeks more, I'll send in a duplicate copy of your report,' says the Defensive Naval Transport Officer. 'But it is no use trying to hurry Whitehall. I know the ropes up there better than you do. They have a lot of important matters to attend to, you know.'

"Well, at the end of the two weeks a boy scout came aboard with a long envelope. The old man, who was aft, talking with the engineer, opened it, and read:

"'In reply to your 1524-XY-14, in reference to report 1505-ZY-13, you are instructed to acquaint the master of transport AE806 that there is nothing in the Admiralty Regulations authorizing the payment of prize

money for capturing, sinking or damaging one of His Britannic Majesty's submarines.'

"The old man read that amazing communication over several times.

"That certainly looks fishy," he says at last. "If it means anything, it means we shot up a British submarine."

"I had a sinking feeling, and when I looked at Jimmy his face had gone white. It hits you pretty hard to think you have caused the death of your own countrymen."

"The old man hurried up to the Transport Office, and, all out of breath, demanded an explanation.

"If we had any information it would be confidential, you know," says the Defensive Naval Transport Officer. "But the Admiralty have not blamed you, and that is the only thing that ought to concern you. Of course, you can hardly expect prize money for damaging, sinking, or capturing one of His Majesty's submarines."

"Hang the prize money," says the old man. "But why don't they tell us what we did. Evidently we have the blood of that submarine's crew upon our heads, but still I'd like to know the worst—how many men—?"

"The Admiralty no doubt have reasons for not giving you more information," says the Defensive Naval Transport Officer. "I wouldn't ask questions."

"The old man was fairly flabber-

gasted. He returned to the ship, told us what the Defensive Naval Transport Officer had to say and then lapsed into a moody silence. Of course, I was a bit worried, though I felt certain the Admiralty would not blame us, and I tried to cheer up my mate, who, I saw, was taking the thing very much to heart.

"Cheer up, Jimmy," says I. "Obey orders if you break owners. You got the signal before you fired, and, anyway, we are supposed to shoot at any submarine. And what's the lives of a few men these days? Nothing to worry about."

"That may be so," says Jimmy. "But I can't help thinking that if I had tried to make out the letter on her conning tower I might have seen she was British. I reckon I was in too much of a hurry to fire. I'll always be thinking of those men, and how they may have died, and I'll be dreaming horrible dreams about them too."

"Jimmy's point of view rather took the wind out of my sails. I had noticed something white on the conning tower, and maybe the telescope would have shown the mark of a British submarine. But it was no use thinking of what we might have done.

"Oh, let's forget it," I says. "No British submarine had any business on the surface out there. If we had cause to blame ourselves, we would soon have heard about it."

"But you did not fire the shot," says Jimmy.

"No, but I fired the next one," says I.

"And just then I saw the Principal Naval Transport Officer coming along the docks, leading a gilded little procession.

"Ho," says I, "here's an inspection party, and some party too. Look, Jimmy. That tall man with all the gold braid is the admiral who has charge of the channel hereabouts. That military bloke with all the ribbons in the world is a Field Marshal; you may have seen him in Canada. And the cove in civies is, yes, I believe, he is the First Land Lord of the Navy."

The party came to quayside, studied our little ship for a few minutes, and then, seeing our old man on deck, the Principal Naval Transport Officer led the way aboard. Presently the tall admiral was saying:

"Well, captain, this is the first lake boat I have ever been aboard of. I hope they won't send over any more to smash up our brand new submarines."

"So it is true, then, that we hit a British submarine?" says the old man. "Well, I'm mighty sorry. It isn't good to have the blood of your own people on your head."

The admiral stared thoughtfully, and then turned to Jimmy.

"How does the young lad who fired the shot feel about it?" he asks.

Continued on page 52



A view of Halifax Harbor from the Citadel

British & Colonial Press Photograph

THE CANADIAN ILLUSTRATED MONTHLY

Published Monthly by
CANADA STEAMSHIP LINES LIMITED

EDITED BY GARNAUT AGASSIZ

Vol. VI

MONTREAL, MARCH, 1921

No. 1

PROSPERITY FOR CANADA ON THE WAY

PROSPERITY is on the wing! From every part of Canada come the most encouraging reports of business revival. The winter, which last autumn so many people contemplated with fear, has been passed without economic disturbance or any measure of wide distress. Through the kindness of Providence, too, the winter, from coast to coast, has been the most remarkable on record, and not only has saved millions of dollars to the country in the consumption of fuel, removal of snow, and in the general operating costs of the railways and public utilities, but has induced many residents to remain in Canada throughout the winter instead of going, as customary, to one or other of the Southern winter resorts.

In many of the provinces cultivation is already well under way, and there is every promise of an early opening of navigation, which plays such an important part in Canadian life. Immigrants of a good class are arriving in the country in increasing numbers, and, fortunately for the good of the country, most of these immigrants are of the agricultural class, or men from Great Britain, who, without previous farming experience, have determined to settle on the land and become good Canadian citizens.

This year's acreage in the West promises to be the largest on record, and with a revival of general industry, the mines and manufactories of the Dominion should once again be working to capacity. Taken all together, the future of Canada is one of bountiful promise.



A BANNER TOURIST SEASON

CANADA has every reason to anticipate a banner tourist season this summer, for contrary to expectations the economic conditions in Europe are still unsettled, and the average American must be content to again spend his summer vacation on this side of the Atlantic.

Since 1914, the many summer regions of Canada have become increasingly popular to the people of the United States, and it is fair to assume that this popularity will grow with the years, for no country in the world, perhaps, has more to offer tourists than this Dominion, which, a far-flung territory extending more than 3,000 miles, contains almost every character of topography. The opportunity for outdoor sport, too, is unlimited, especially for the angler, who can find within our borders every kind of fresh and salt-water fishing. As a whole, too, the summer climate of Canada is very salubrious, most sections being free from hay fever and other summer maladies.

The Provinces of Quebec and New Brunswick, too, being wet, will have, of course, an added attraction for many Americans not in favor of the Volstead Act.



ARE WE TO HAVE ANOTHER CALGARY?

PRESENT indications point to a veritable stampede to the Fort Norman district of the Peace River Country with the arrival of spring, following the announcement by the Imperial Oil Company of the discovery of oil in that region, and it would seem that we are to witness an "oil boom" even greater than the unfortunate Calgary affair of 1914. We believe that all encouragement should be given to the legitimate development of Canada's latent resources, but, at the same time, we feel strongly that the public should be protected against that class of promoter who capitalizes discoveries of this nature to the detriment of the country as a whole.

The oil industry has had a picturesque history, but each year it is becoming more stable, and where even a decade ago its extension was largely predicated on "wild-catting," to-day the testing of a new field is largely carried on by the big producing companies, who employ corps of geologists and engineers for this single purpose.

There may be a great deal of oil in this new region of Western Canada, and there probably is, but we must remember that the district is hundreds of miles away from civilization, and that until such time as the problems of transporting the product to the markets of the world have been successfully solved, no great commercial success can be made.

It is to be hoped that for the benefit of the small wage earner the Government will do everything in its power to prevent the crooked promoter from employing the Fort Norman district as his latest field of operations.

Lumbering in British Columbia

POSSESSING the greatest stand of saw log timber in any area on the American continent, British Columbia lumbermen are in a position to take the present slump in world trade more or less philosophically, and while their business has not been immune from the hectic trade conditions which have existed since 1916, the industry is basically sound, and its future prosperity assured. After the Armistice, a brief lull was experienced, followed very shortly by a steadily increasing demand for lumber from all parts of the world. Prices soared to a height which every sound business man recognized as unwarranted.

American buyers invaded British Columbia, and offered prices far above prevailing market quotations, and for a few months business boomed.

Then came a period of almost unprecedented chaos in the Western lumber world, and a natural reaction. Prices have declined steadily for many months, until many mills have been closed and camps shut down, awaiting patiently the hour when the business thermometer shall register "normal" again.

While not unduly optimistic, lumbermen are looking forward to a certain revival in trade during the coming season. The market for this foremost British Columbia product is the whole world. B.C. Douglas fir

By Lukin Johnston

has an international reputation for its great size and strength, and with the stabilization of conditions there is every expectation that the demand for this product from India, Oceania, South Africa, and other portions of the Empire, as well as from the United States and the Orient, again will assume large proportions.

Developments in the overseas lumber trade of British Columbia within the last few years have demanded a revolution in logging methods, and many changes have been made in mill and camp operation. Methods evolved by the necessities of war-time production have been improved and developed to such a degree as to permit a very large increase in the annual cut when the demand has been restored. Modern machinery is being introduced into the forests, standard gauge railways to convey the huge logs to the booming grounds on tide-water and lake are being constructed, while aeroplanes to carry timber cruiser and forest warden over hills and valleys contiguous to the coast have been introduced.

Estimates compiled by eminent forestry engineers place the stand of saw log timber in British Columbia at 350,000,000,000 feet, board measure,

and the pulpwood resources at 366,000,000,000 feet.

The pulp and paper industry is one of fast-growing importance. Thousands of tons of newsprint and "kraft" papers, as well as very large quantities of bleached sulphite pulp, are shipped annually from the big mills along the coast, their combined value during 1920 having amounted to more than \$21,000,000, and it is predicted, not without reason, that within a few years the province will be one of the chief sources of the world's pulp and paper supply. Abundant water-power is available from hundreds of mountain lakes and tumbling waterfalls near the sea coast, materially lowering manufacturing costs.

Despite the immense areas of forest lands in the province, there are at present only 385 saw mills and shingle mills in operation, the number of employees amounting to approximately twelve thousand. Closely allied with the mills there were operating 567 logging firms, employing some eleven thousand hands.

To aid the mills in supplying the export demand, the Federal Government, through the Vancouver Board of Harbor Commissioners, intends to establish booming grounds and assembling wharves to facilitate the work of loading ocean carriers. Plans are being prepared for such docks, to which the smaller mills will be able to



Photograph by Edwards Bros., Vancouver, B.C.

Steam and sail vessels loading British Columbia lumber at the Port of Vancouver



A giant of the forest being hauled down the skidway in typical British Columbia style

ship their output, where it will be sized and graded for instant transfer to shipboard. Lack of accommodation of this kind in the past has retarded to some extent the development of the overseas trade in British Columbia lumber.

The bulk of British Columbia timber is cut in what is known as the Coast District, the majority of the mills being located in the vicinity of Vancouver, the principal port of Western Canada. The Coast District is subdivided into smaller districts; southern mainland, east coast, Vancouver Island; west coast, Vancouver Island; northern mainland, and Queen Charlotte Islands.

With the exception of the west coast of Vancouver Island, which gets the full sweep of the Pacific ocean, logging operations are carried on mainly in sheltered waters. The major portion of the lumbering industry has been developed in the southern mainland and west coast districts. The waters, sheltered by the great mountain ranges of Vancouver Island, afford every opportunity for easy towing of booms and log rafts to the mills near the export centres. The timber remaining in this southern mainland district is estimated at 120,000,000,000 feet, consisting of 50,000,000,000 feet of Douglas fir, 35,000,000,000 feet of western cedar, 20,000,000,000 feet of hemlock, 10,000,000,000 feet of balsam, 2,000,000,-

000 feet of spruce and the remainder of other and less common woods.

It is estimated that the timber stand on the west coast of Vancouver Island amounts to nearly 55,000,000,-000 feet, which, owing to the natural difficulties and the uncertainties of weather, in all probability will have to be sawn locally. Several mills are in operation on the west coast, par-

ticularly along the Alberni Canal, a long, sheltered inlet, and there is a considerable cut, some millions of feet having been shipped across the Pacific.

The north mainland district, which extends from Queen Charlotte Sound to the Alaskan boundary, has, it is computed, a stand of 23,000,000,000 feet of saw logs and large areas of available pu'pwood.

The forests of Queen Charlotte Islands contain about 15,000,000,000 feet, mostly hemlock and Sitka spruce, which is particularly suited to the construction of aeroplanes. It was from the forests of Queen Charlotte Islands, in fact, that a great part of the timber for the allied fighting 'planes was obtained during the concluding period of the Great War.

The interior districts of the province, while heavily timbered, have not the heavy stands which feature the growth along the thousands of miles of tidal waters of the coast region, but they contribute to British Columbia's total available supply.

The history of lumbering in British Columbia is a story of romance and daring, a record of success under difficult circumstances, of heroic failure, of haphazard business methods, and of chance sales. Such is the tale of the past. The present is an era of keen commercial competition with system and organized selling forces as factors in efficient management. The operator of to-day must be a man versed not only in the intricacies of logging and milling, but an expert on trans-



A view of a typical British Columbia forest, showing splendid examples of coast fir and cedars

portation problems, domestic and foreign markets, and in exchange problems.

No longer is the future left entirely to the vagaries of chance. The timber is sold before it is felled or the tonnage or rail transportation made available for its transportation.

The day of the old-time timber cruiser practically has passed, although a few of the old school remain. These picturesque pioneers of the woodlands have given way to the forest engineer, who with mathematical and technical knowledge, gained in the scientific study of his craft, measures with accuracy the stand of timber in a tract, which his predecessor computed largely by guesswork. Such has been the change brought about in every phase of the industry. Old-time methods have given place to modern ideas and efficiency, and the bearded pioneer of the mill and camp to the graduate

of the forestry college and the business school.

Little did the men who first laid axe to the virgin forests of the British Columbia coast and interior hills dream that half a century later the men who followed them would be planning to rehouse the universe. Little did they anticipate that they would be selling ready-made houses with no more concern or thought than the pioneers would have effected the sale of a few thousand feet of rough boards.

The ready-made house industry is one that is destined to develop greatly within the next few years. Great Britain is the market which the lumbermen hope to capture, and, despite their present lack of success, they hope to ultimately convert the conservative people of the British Isles to the practicality of these convenient and inexpensive dwellings.

Sectional houses, facetiously called "ready-to-wear," and cut-to-fit dwellings, dubbed "tailor-made" houses, are known now in Great Britain through the activities of the British Columbia Agent-General in London, and through the enterprise of private firms. They are made in a great variety of design and in many sizes, and should prove as suited to the climate of England as to the damp winter weather of the Pacific lower mainland.

Viewed from all angles, the lumber industry in Canada's Pacific province is on the eve of a great development and expansion, and in the years to come the mills and camps should multiply greatly, for the timbered hills and valleys of the province afford opportunity for operations that at present are limited only by the scope of capital and consuming markets.



Through the depths of a British Columbia forest

British & Colonial Press Photograph

The Story of a Little Evergreen Tree

By Miriam Stein

ONCE upon a time, a seed was dropped, took root, and grew up into a lovely little evergreen tree, that stood among hundreds, aye, thousands—the little tree thought, when it began to take notice—of other trees of many kinds. The greater number of these were like itself, in that they remained green all the year. But in this way only were they alike; for the others were nearly all great tall, stately forms, that marched away in long ranks, in every direction, as far as little tree, which stood near the edge of a lovely little clearing, could see. It stood among a little group of its own family, and was the youngest one there; and, therefore, listened with great awe to all the others, who dispensed knowledge, wisdom, and advice, and gossip, just like human beings.

The little tree was very happy, and interested in all the life around it. The squirrels that chattered, and mocked one another; the rabbits that scurried so quickly from place to place; the sly foxes that came sneaking, and in fact in everything that moved and lived. And, oh! the wonderful things it did hear and see. More than you and I, perhaps, who are only human after all; and from whom much, very much, is shut away.

It loved the soft spring evenings, when the large evening star hung low in the calm, pale sky; and there were whispers everywhere of new and stirring life—among the trees, the animals, and the birds. The long, glorious summer days, commencing with a chorus of song to welcome the faint rose, and gray dawn, bursting into golden light. The autumn stillness and calm, broken only by the rustle of leaves, fallen from those trees that stood naked all winter—why the little tree shivered when it thought of it, and as the leaves silently fluttered down, it felt very thankful for its beautiful foliage. The silent winter nights, when the sky was a deep blue, set with silver stars, and the moon revealed each tree laden with shining white, which at the slightest wind fell to the white below with a gentle plump. But it was not always still and silent. There were raging storms, when the little tree looked into a wild, white, whirling world of snow; when there were moanings and groanings among

all the trees, and the little tree itself shook and shivered with what was not altogether fear; for there was a wild beauty in it all that filled its sturdy little heart with exultation.

So, among so much beauty, as time passed, it grew into a slender, beautiful tree, but still known among its family as Little Tree.

Now, as Little Tree grew older, it longed for romance and adventure, as is the way of youth, and listened, not altogether with fear, to the tales of its elders, about trees which were cut down and carried away into the world, which it longed to see. Some to be cut up—Little Tree rather shivered at that—into lumber, and wood for furniture; and to be put to all its thousand and one uses. And here the trees would boast about their wonderful value to the world. "Why," they would say, "man cannot get on without us. We form their houses, and furniture, become their paper; and in fact are the most useful things in the world." But it loved to hear, best of all, about the trees that were taken away in the depth of winter and used as Christmas trees. Wonderful fairy things, all bedecked, and loaded with gifts; and although its elders never seemed to know what became of them eventually, or failed to give a warning of the unfaithfulness of man, Little Tree longed with all its heart for this wonderful adventure.

Now, whether this longing really brought about what happened, as a thing greatly desired is said to be brought about sometimes by the very longing for it, or whether it was just fate, it happened that one mild day in December, when the snow lay thick and heavy, and a few flakes, heralds of the storm to come, drifted lazily down, some men with axes over their shoulders, and driving a sleigh loaded with trees, stopped before the group of which Little Tree was one, and, after examining them all, decided

upon it as the only one they would take.

Little Tree was rather frightened, in spite of being glad,

and all its relations wailed and moaned most mournfully. Suddenly, it felt a sharp stroke in its side, followed by others, thick and fast. It felt dizzy and sick, but even then it remembered the words of one of its family: "There can be no pleasure without some pain, for life is made up of both, and they sometimes follow one another so closely that they enhance the one and deepen the other." At last came a blow so strong that Little Tree shivered all over, staggered, and fell with a thud.

When it came to itself again, it was lying on the sleigh with the other trees, and passing slowly along a road. Little Tree realized that it was seeing the world at last, and excitedly began to take notice.

It was a wonderful journey to one who was seeing, for the first time, all the wonders of country and city, and such a city as it was, just before Christmas time, when all was bustle and excitement. It and its companions wondered at everything, laughed and chatted, and enjoyed themselves very much. Every little while the sleigh would stop before some house, and a group of happy looking children would watch from the windows one of the trees being taken inside, accompanied by the good wishes of all the other trees. At last, it was Little Tree's turn. It was carried through a fine hall and into a beautiful room, followed by all the children. It was placed upright in a green box of earth in one corner, and the excitement and delight of the children, and exclamations of admiration of the older people, about its lovely color and height, made Little Tree very proud and happy indeed.

All the rest of the afternoon and part of the evening, they spent in decorating it. They placed a beautiful white, glittering angel at the top of it, and hung yards and yards of the same white glittering stuff—that looked like the snow, with the moonlight shining on it, to Little Tree—all over it, and then they put little colored candles on every twig and branch, and loaded it down with gaily done up parcels and toys, and when it actually could not hold any more,

they placed more parcels on the floor, under its branches.

What a proud, happy, memorable night that was in the life of Little Tree. It had never seen so many people in its life before, so well dressed, happy, and full of merriment; for there was a large party, it seemed, for one of the lovely young girls. When Little Tree tired looking at the people, it would take a look around the beautifully decorated room, until it came to the long mirror on the opposite wall, in which it could see itself in all its magnificence from the very tip-top to the floor, and it only wished that all the other trees back home could see it, and hear all the complimentary things that were said about it.

A piece of Mistletoe, which hung above a door near Little Tree, caught it looking at itself more than once that evening, and Little Tree felt rather ashamed of its vanity. But the Mistletoe spoke of it in quite a friendly way, and told it many, many things that it had never heard of, for it was a well-informed piece of Mistletoe, that, and rather a knowing one. For one thing, it told Little Tree that every girl in the room had been kissed under it, and furthermore, although some of them pretended to be angry, they really liked it, because he had heard them planning and whispering among themselves, earlier in the evening. They chatted most of the evening, and Little Tree enjoyed its remarks, so sprightly and full of humor.

At last, all the guests were gone, the lights put out, and Little Tree, the Mistletoe, and all the decorations, found themselves in darkness, except for the light from the dying fire in the grate. As this grew less and less, and the decorations stopped whispering among themselves, Little Tree became conscious of a feeling of heaviness and oppression, and it realized that it was the fresh air of the great outside world, to which it had been accustomed all its life, that it missed, and it wondered how long it could live here.

However, some time after the faint, gray light had grown brighter and clearer, a couple of maid servants appeared, threw open the windows while they swept and dusted the room, and although they started another fire, the fresh air greatly revived Little Tree, and it was quite interested in watching them, and looked forward with great delight to the day to come. The forebodings and depression of the dark and lonesome night had given way to pleasure-

able anticipations again. It was not disappointed, for if the night before had been a memorable one, this was a memorable day. From the moment the children crept in, in dressing gowns and slippers, to hail with delight the offerings of their Patron Saint, through the long day of home pleasures, to the evening of stories and reminiscences, around the fire by the elders, when all the candles were again lighted on Little Tree, and the children danced around it with joy, it was one round of pleasure—pleasure that more than fulfilled its anticipations.

During the next few days, the festivities died down, and Little Tree itself commenced to fear it was dying; for its branches were beginning to droop, and it was getting very dry and brittle. It began to wonder what was to become of it. It was not left long in doubt. The next day the children took all the decorations off it, and a man lifted it up and carried it out, not the way it had come in, but through the house, out through a yard (how good the air was, Little Tree felt better immediately), through a kind of shed, and into a narrow lane, walled in by the backs of houses on each side. Here Little Tree was thrown down on its side and left.

It was very glad to be in the outside world again, and soon felt much better, but as it became used to the air, it wondered if it would have to spend the rest of its life in that miserable, lonesome place, where it soon found out that the only passers-by were trampish looking men with bags over their backs who called out something in strange, hoarse voices; or now and then a sleigh went by. Sometimes, too, heads would appear at the small windows in the opposite wall, when, after lowering mysterious looking bundles to the ground, the windows would close with a bang, and Little Tree left to its lonely thoughts. And they were very lonely and sad. Thoughts of all the trees in their upright glory, of all the life and beauty of the forest it had left. It remembered the beautiful moonlight nights and golden days, and it felt very sick at heart indeed, and rather bitter at man's unfaithfulness.

When it had reached the depth of its despair, after lying there many days and nights—and if the days were bad, you can imagine what the nights were like, when no gleam of brightness or light reached it, and no human being came near it—two boys came along, drawing a hand-sleigh. Poorly dressed, rough looking boys, they were, but at sight of Little Tree they gave a whoop

of joy, and lifting it on their sleigh, started off, one drawing it while the other held it on.

Then commenced a strange journey for Little Tree. Through lanes and poor, dirty streets, where the houses were all tumble-down affairs, and the chief impression was of dirty snow, dirtier children, and garbage. But, Little Tree was so glad to be taken away from that wretched lane, where it had spent the most miserable days of its life, that it did not mind this at all. In fact, it found much that interested it among the poorly dressed, anxious looking people. It was especially pleased when the children would leave their play and run after it, with exclamations of admiration and pleasure, and beg its owners to let them have a branch, or even a twig. And, although it hurt to be broken, Little Tree was glad they got them.

At last, the boys stopped before a dilapidated looking old house, and, lifting Little Tree, carried it in and down a flight of steps into a dark, poor room furnished with a stove, a table and some chairs, and a small, green iron bed in one corner. Yet, it was home-like, Little Tree thought, for everything was clean, and there was a little white curtain at the poor apologetic looking window, and on its sill a few plants, very poor and scraggy, but still, plants—one even boasting a red blossom.

Little Tree thought it was well that they did not have much furniture, because there were so many children, who hailed it with delight. They stood it up in the brightest corner, and stood around, admiring, and praising, and touching it with such loving hands that Little Tree felt that it was very fortunate to be able to give so much pleasure all over again.

It learned all about the family that night. It seemed the father had been killed in an accident some time before; the mother and six children had this room and one other. The mother went out working by the day, the two eldest boys sold papers, the third one, who went to school, had found it, and then there was a girl, pale, and so sick looking, that Little Tree knew she could not live long. The other children must have felt there was some difference about her, too, for her word was law in everything, and a very gentle and unselfish law in all things it was. She mothered and took care of the whole family, and the home. The flowers belonged to

The Story Of The Trent Canal

By C. Lintern Sibley

THE series of water stretches, which for many years have been known under the general name of the Trent Canal, are gradually being formed into an important canal system which, it is hoped, will ultimately provide a short through cut for much traffic between Lake Ontario and Lake Huron. Already these water stretches form a connected system of navigation, and although this system is at present only suitable for local use, yet it is now possible to make the whole trip from Lake Ontario to Georgian Bay by motor boat.

The plan for this canal was inaugurated by the Imperial Government as far back as 1837, but the full execution of the scheme was delayed from time to time, and it has only been by various works executed at long intervals that the local use of the route has been extended. Other works are now in progress and in contemplation, and there seems no doubt that ultimately the canal will be completed along the lines originally laid down.

Across the Peninsula there is a chain of lakes and rivers extending

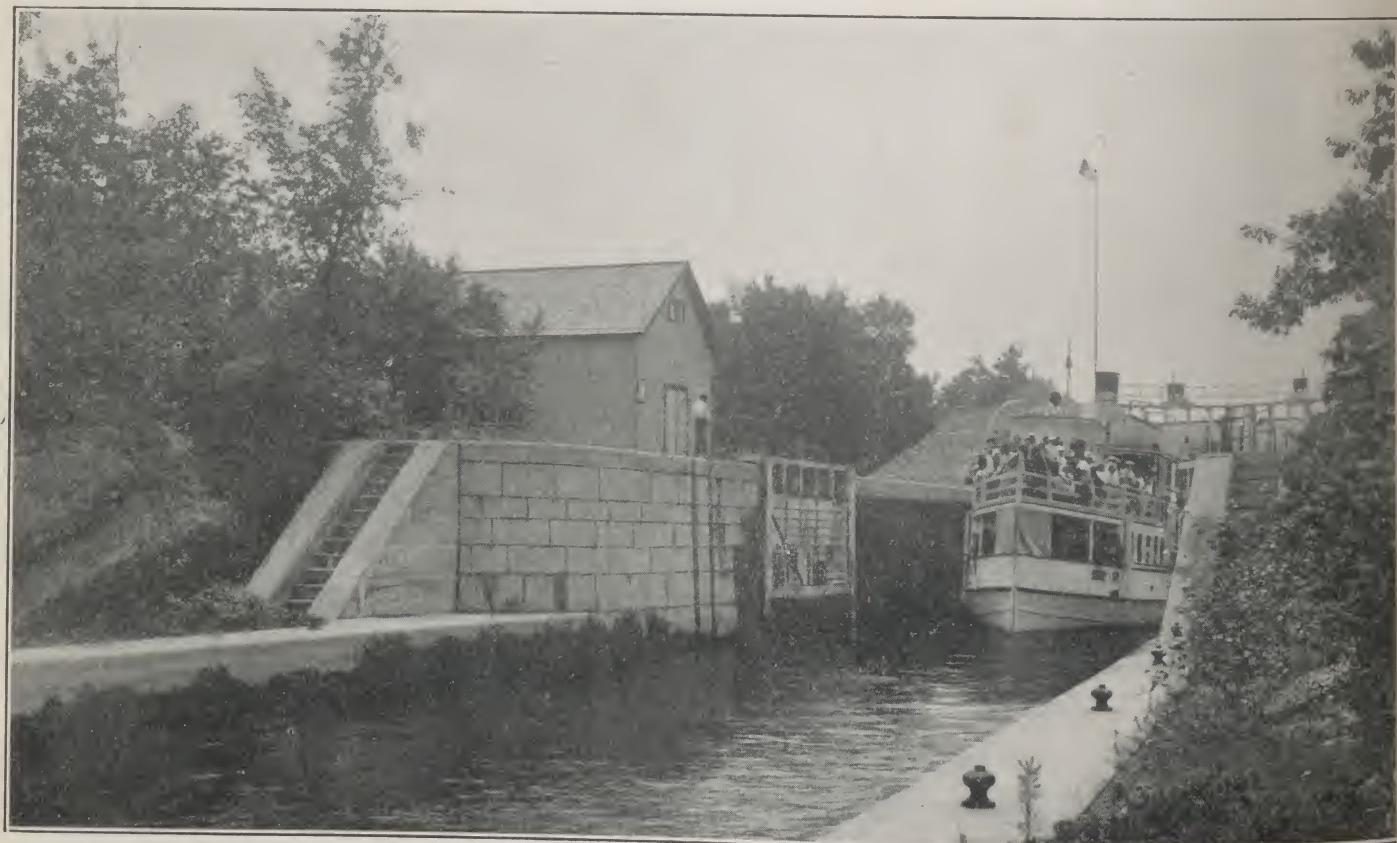
from Trenton at the mouth of the River Trent, on the Bay of Quinte, Lake Ontario, to Honey Harbour, about ten miles North of Midland, on Georgian Bay, Lake Huron. The course originally contemplated was through the River Trent, Rice Lake, River Otonabee and a series of lakes to Lake Balsam, the summit water, about 155 miles from Trenton, and thence by a canal and the River Talbot to Lake Simcoe. From Lake Simcoe the route is through Lake Couchiching and down the Severn River to Gloucester Pool, thence to the Go-Home Lakes and South Honey Harbour, and entering Georgian Bay at Skylark Lake, between the islands of Beausoleil and Minnicogashene.

The distance between Quinte Bay and Georgian Bay by this route is only about 235 miles. To connect the waters draining into the Quinte Bay to those draining into Lake

Simcoe only $30\frac{3}{4}$ miles of canal cut were necessary, but several other canals have to be added to secure a navigable waterway.

The canal will never form a part of the main artery for traffic to and from the Great Lakes because the depth of water on the sills is only 8 feet 4 inches, but for local purposes the waterway becomes of more and more importance as the years go on. There are at present no fewer than 41 locks on the route. Of these about 20 are 175 feet in length, the remainder running from 134 feet to 150 feet. The breadth of all the locks is 33 feet, but only 20 of them so far have a depth of 8 feet 4 inches on the sill, the others being of a depth of 6 feet only. The lifts vary from 4 feet at Rosedale to 65 feet at the hydraulic lift lock at Peterborough.

The works by which the Trent navigation has been improved to date comprise short canals with locks as follows: between Trenton and Frankford, 6 locks; Glen Ross; between Glen Ross and Campbellford, 5 locks, including two locks in flight at Ranney Falls; between Campbellford and Healey Falls, 3 locks; at



Photograph, courtesy Exhibits & Publicity Bureau, Department of Trade & Commerce
Pleasure craft passing through Lock No. 3, Trent Canal

Healey Falls, 2 locks in flight; Hastings, Peterborough; Peterborough to Lakefield, 7 locks, one being a hydraulic lift; one at Young's point, two at Burleigh Falls, one at Lovesick; Buckhorn, Bobcaygeon, two at Fenelon Falls, one at Rosedale, and six locks between Balsam and Simcoe Lakes, one being a hydraulic lift; also lock and dam at Lindsay; also lock and dam at Port Severn, on Georgian Bay; also 6 dams between Trenton and Frankford, one at Glen Ross, three between Glen Ross and Campbellford, one above Campbellford, one at Middle Falls, Healey Falls, Hastings, and Peterborough; Peterborough to Lakefield, 6; one at Young's Point, Burleigh, Lovesick, Buckhorn, Bobcaygeon, Fenelon Falls, Rosedale, and three between Balsam and Simcoe Lakes.

Bridges have also been built at many of the locks at other places.

The Trent Canal runs through a

most picturesque region and one that is also of considerable industry importance. For instance, the Trent River is the outlet for numerous lakes situated among extensive pine forests in Peterborough County, and for many years this river has been used for transporting vast quantities of timber and logs. The river also possesses some of the finest water powers in Ontario, and on it are situated large mills and flourishing towns. The surrounding country also contains much rich agricultural land, and there is a prosperous population engaged in varied industrial, mercantile and manufacturing businesses.

The lakes at the head of the Trent River abound with trout, salmon trout, maskinonge, pickerel and other fish. Indeed, this is true of practically all the lakes and rivers along the entire route of the Trent Canal, and the whole region is every year becoming more popular as a summer

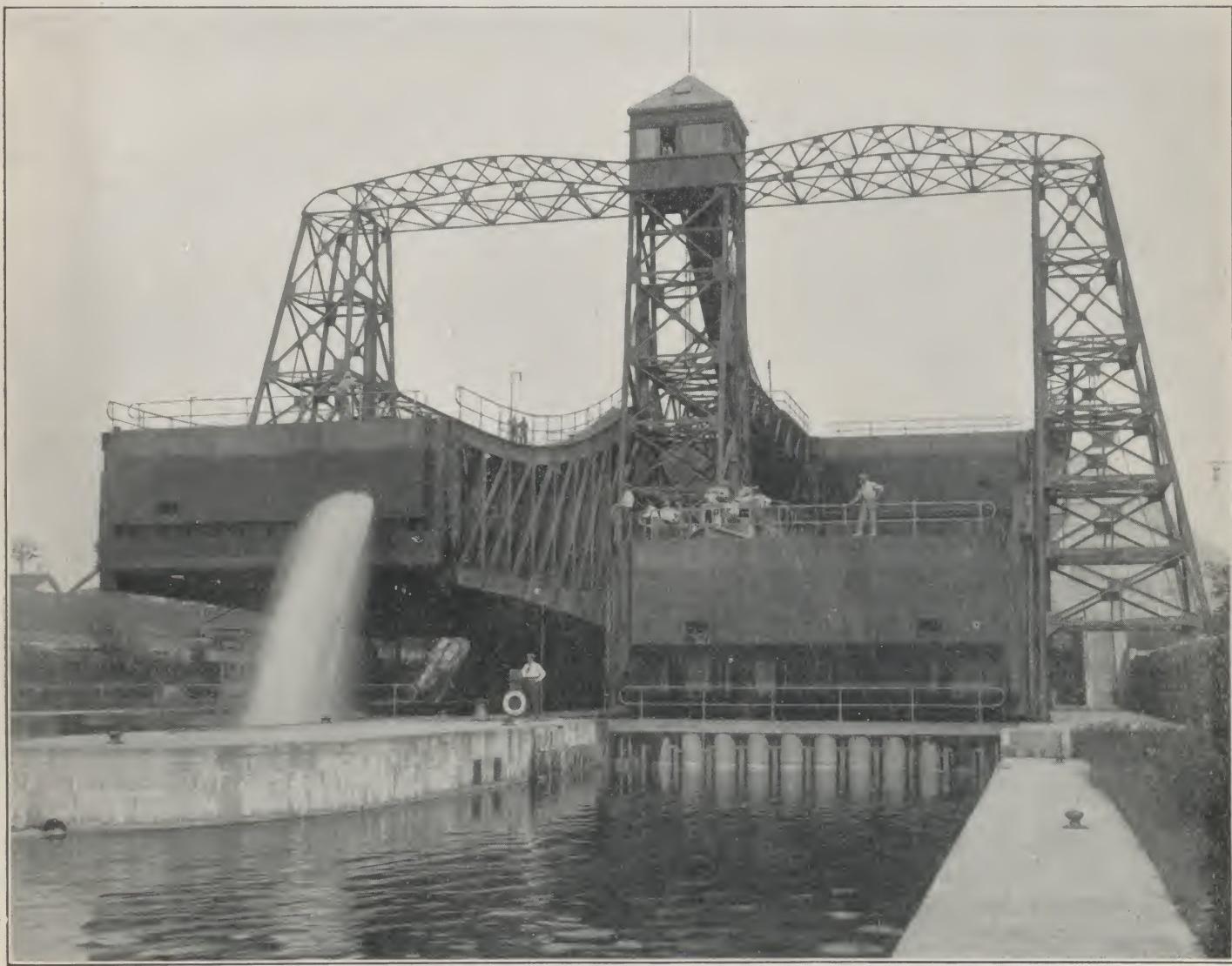
playground. Among the more famous summer resorts in this region may be mentioned Bobcaygeon, situated on an island between Sturgeon and Pigeon Lakes. This is an important lumber depot and at the same time has every year a large number of summer visitors who like good fishing, lovely scenery and endless opportunities for excursions by water.

Fenelon Falls, at the junction of Sturgeon Lake and Cameron Lake, is also developing fast as a summer resort.

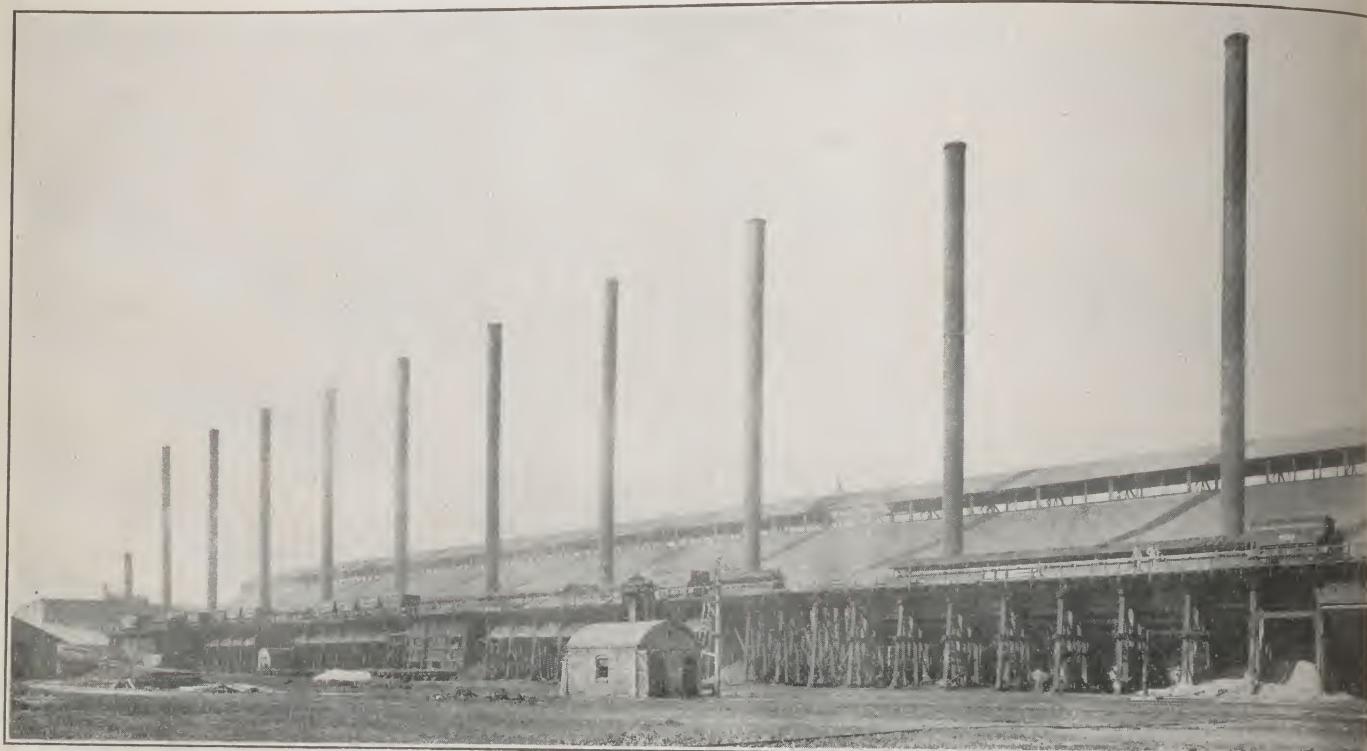
One of the finest lakes on the route is Balsam Lake, which has an area of 11,200 acres. This lake is situated in a highly picturesque region and every year attracts summer visitors from far and near.

But the most famous lake of all is Lake Simcoe. This lake, which is renowned for its blue waters, is nearly 30 miles long and about 18

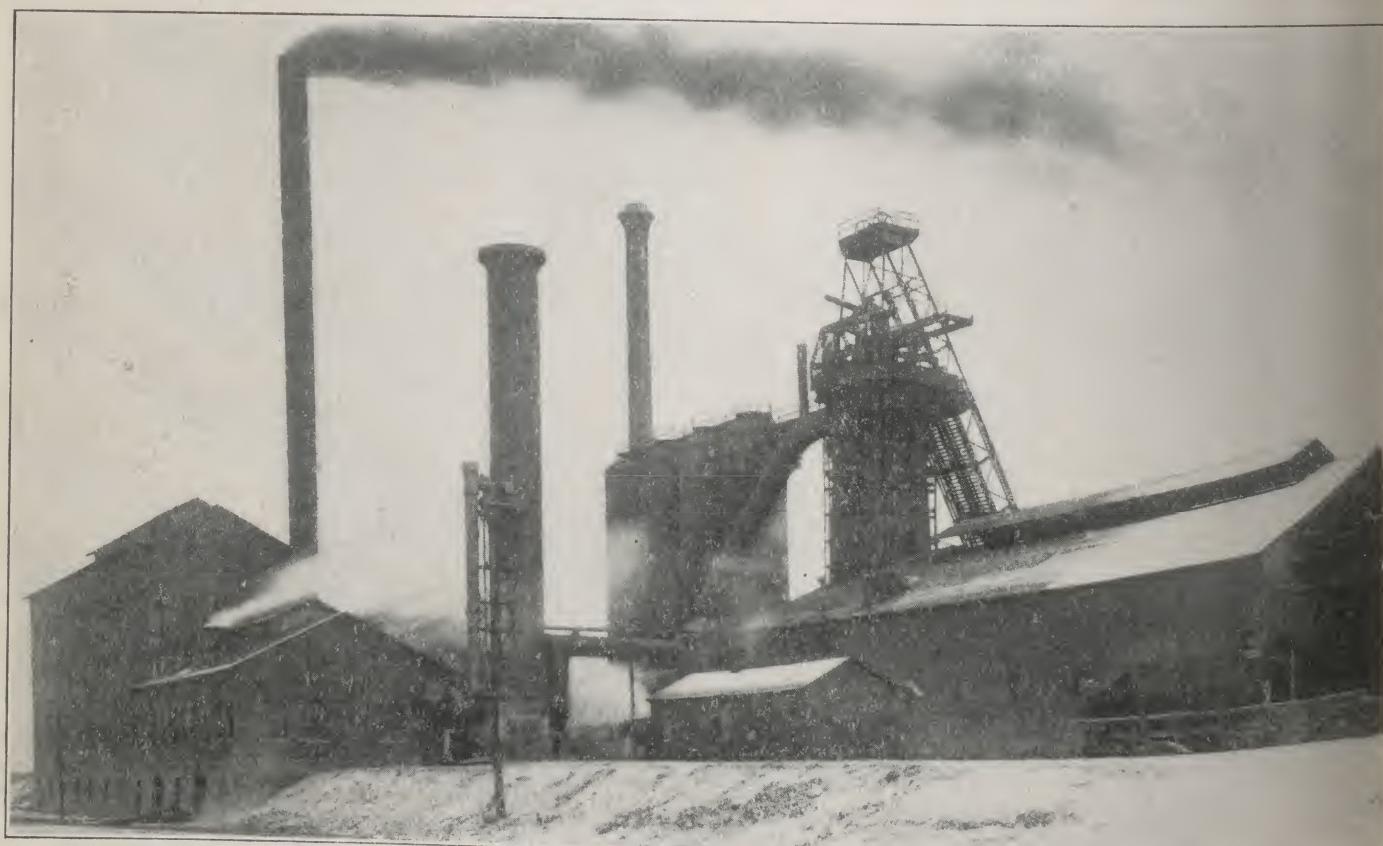
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Photograph, courtesy Exhibits & Publicity Bureau, Department of Trade & Commerce
The Kirkfield Lift Lock, Trent Canal



Photograph by S. J. Hayward, Montreal
A view of the open hearth furnaces. Dominion Steel Company, Sydney, N.S.



Blast Furnaces and Air Compression Plant, Nova Scotia Steel & Coal Co., New Glasgow, N.S.



Notes From the Canadian Capital

R. Stone

THOSE who take to the public life and are interested in its politics and policies find unfettered opportunities in the parliamentary session. This year's conclave has about it all the accentuated interest that comes from the supremely important questions to be determined, as well as from the political situation in which Parliament is enveloped. Politically, we are living in rather uncertain days. It is not making any partisan statement to say

By Charles Bishop

that the prospect is both nebulous and problematical, full of contingent and qualifying conditions.

In the 1917 elections, the ministerial majority was the most emphatic accorded any government in Canada; but that was in war time. The dominating issue had to do with the war; politics, by thousands, were sub-

merged for the moment. The Parliament elected then, comprised men of widely divergent views, but they were all harmonized while the war lasted, to the end that Canadian effort might be made more effective. Since then, there has been a marked change and, in a way, it but reflects the mutability of things and opinions and conditions in the wake of a world upheaval. The unrest has found its way into Parliament, and, long since, independence began to assert itself. The first mani-



A view of the Senate Chamber, in the magnificent new Parliament Buildings, Ottawa

British & Colonial Press Photograph



The Dominion Bank's Montreal branch

festation came, soon after peace, when a little group moved over to what was then an anomaly in Parliament—the so called cross-benchers. That was the Alpha of an independent party which may find its Omega, not in disaster, but in the seats of the mighty. This may not be probable, and it is not desirable, but it is readily conceivable by any student of politics and political conditions. And the process of change referred to has kept on, till, after winning by-elections here and there and getting new recruits from within the Chamber, the independents number close on twenty. Every one of that twenty represents a loss from the following of the Government, for either they were drawn from the Government supporters in the house or else won, in by-elections, seats which, previously, had been held by the Government. So, we see the 1917 majority of seventy and more reduced to twenty-five on paper, and much less in actuality, making allow-

ance for the enforced absence of the sick and infirm on that side of the house. By a peculiar freak of fortune, it happens that practically every man who is crippled by illness is a Government supporter, while those on the other side are able to muster a full roll call in vital divisions. The adverse conditions make themselves felt and apparent.

They talk about party groups after the next election, but the fact is that, even now, we have four distinct entities in the house—the Government supporters, the Liberal opposition, the Agrarians, or National Progressives as they prefer to be called, and, again, a fourth group—a development of the present session—men who were Government followers, but who have crossed the floor to No Man's Land, because they wish to support neither the Liberals nor the Farmers, but to hew out a course of their own and follow it with a rugged independence. Times may change, and the

education of the populace on public questions and the vital importance of stable government may work out in a partial revision to old lines. For the present, however, we have four groups, and he is blind who fails to see that, after the next election, there will be at least three whatever may be their particular strength.

The session under way develops many points of unique interest. To begin with, we have a new Prime Minister, and, technically, but not otherwise, a new Government. Mr. Meighen brought to his office, as he brings to parliament, the attributes of courage and fearlessness and capacity, all of them needed inspirational forces in the ranks of a party which has suffered much from the somewhat decimating performance above referred to. He is handling himself well in the House. There is a tradition about the office of Prime Minister—a tradition of restraint, and, to some extent, of aloofness. It is well and good for the other Ministers or their followers to wade into the foaming whirligig of partisan politics, but, in the House at all events, the Premier is supposed to be a little above that. That Mr. Meighen is doing his best to uphold the custom and self control is apparent, but it must be difficult for one whose essential disposition is to be in the thick of every fight, preferably leading in the attack instead of the defence. Across the floor we find Mr. Mackenzie King, pursuing a different plan from last year. Then he was new to the job, feeling his way cautiously, initiating little in the way of aggression and, to a degree, halting and uncertain. From some source Mr. King appears to have enlisted stimulus in the meantime, and this session his performance has about it more of what are called "pep" and "punch." They are needed in an opposition, and should be brought into play, but it is a potential rather than an active force on the part of the Government. The Ministry is not the strongest in debating talent; their heavy hitters are few, but, if worst come to worst, they have in their leader one who not only possesses the capacity but who, at heart, dearly loves a parliamentary encounter whatever the atmosphere of reserve that is desirable to envelope his position. Going down the aisle to where the Agrarian party sit, we see them in fine fettle this year, under the leadership of Mr. Crerar, who last season fell a victim to the comforters of Job—all statesmen get them sooner or later. His performance, in consequence, had about it then the draw-

back of physical infirmity and was nothing to shout about. This year he is himself again, and, besides, he has more followers and the moral exaltation that comes from seats won in the country on the Credo of the new party.

The fine strategies of politics are played every session, but they are accentuated always when the party balance is closely adjusted. We had a fine illustration of it this year right at the start. The tariff is to be the big thing of the session, and, ordinarily, the declaration of any principle respecting it is left for the budget, but not necessarily so. This year it is the exception. The fine Italian hand of some crafty politician was indicated as early as the Speech from the Throne, when, in what really was its principal paragraph, the Government not only affirmed its intention of revising the tariff—the expected reference to the subject—but went further still, and asserted boldly that the underlying principle of the revision would be the perpetuation of the protective principle. The object, admittedly, was to "draw out" the opposition. But, instead of their being drawn, we saw a counter exhibition of political tactics, an amendment of want of confidence which branded the Government as usurpers, "lingering long, superfluous, on the stage," without a mandate on the tariff or anything. Specifically, no election was called for; but had that amendment carried, dissolution would have been able. It didn't carry though the Government majority was considerably reduced owing to the defection that began two years ago, the loss of a couple of seats in the House, the recent loss by death of two more supporters and the enforced absence of several others.

There is a somewhat popular idea that this year, in any event, will see dissolution and a general election. Such a thing has no place upon the calendar of the Government. It does not follow that there will be no election because, under present conditions, the Government must be guided by contingencies; but, at least, it may be said that no appeal to the country will be taken if the Ministry is able to avoid it. Their plan is to wait till 1922. This year we will have the census and the census will be the basis of a Redistribution Act which, in turn, will determine the territorial complexion of the next Parliament. Quebec, constitutionally, furnishes the unit. Her population divided by sixty-five, her fixed representation, will establish throughout the Dominion the unit of people

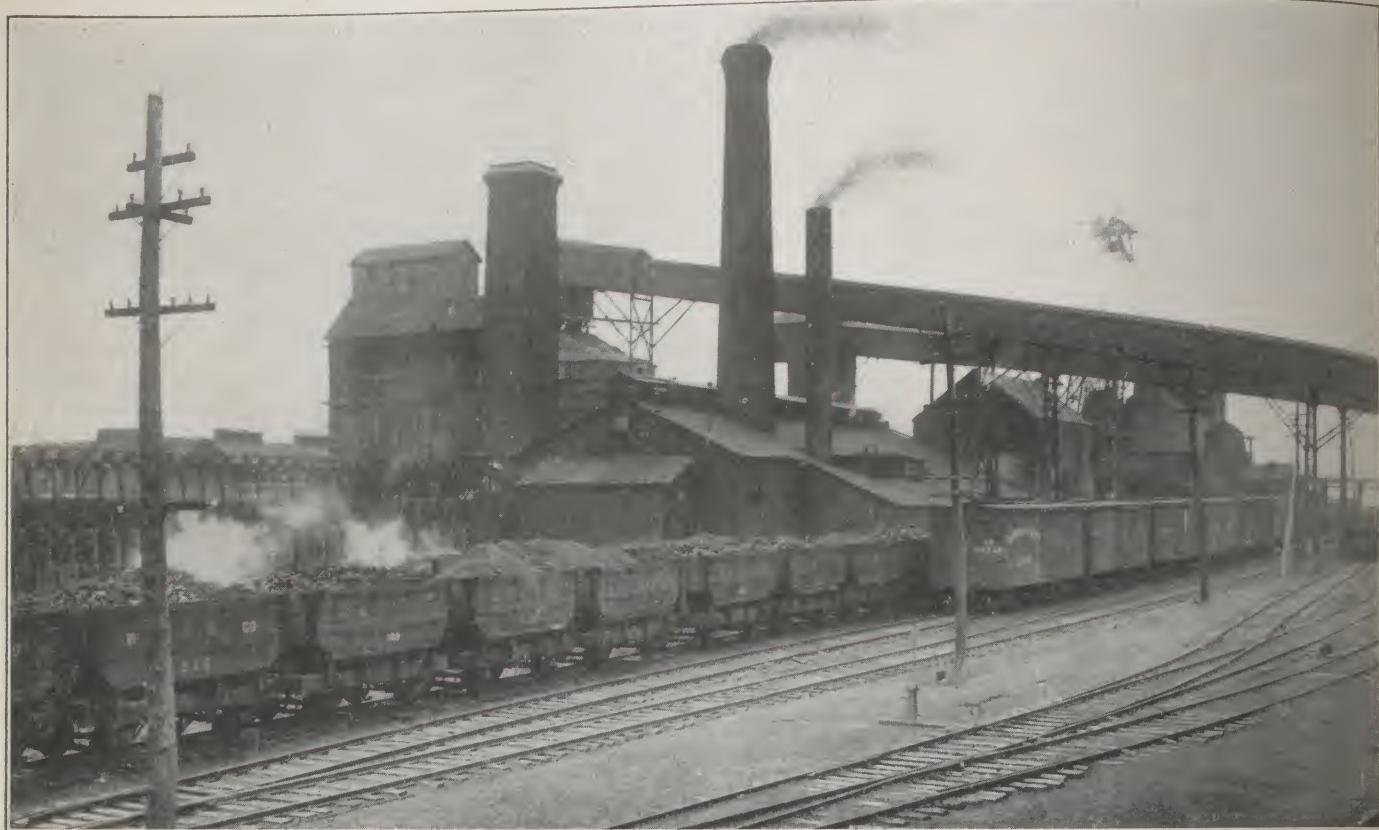
entitled to a separate member. Quebec is a great and growing province, splendid in her stability and industrial progress, but behind the growth is the prolific fecundity of the French race. It is said that the unit of representation from her population will be nearer forty than thirty thousand and, if that be so, and the Government should somewhat reverse custom and adopt a common unit for rural and urban representation, how great will be the shifting about in the political map! Quebec, for instance, will still have her sixty-five members, but nearly twenty of them might come from the Island of Montreal. Ontario's quota, which is not fixed, may be diminished while the West gains, but Toronto would greatly increase her representation while that of rural Ontario would decrease. But the census hasn't been taken yet and it is premature to speculate upon what it will disclose, and, particularly, upon what action Parliament may take or what principle it may apply in

working out the basis of popular representation.

The Government plan, as stated clearly by the Premier, is to await the census and redistribution and have the next Parliament elected under the newer conditions. Perhaps we will have to wait that long and perhaps not. It all depends. There are qualifications and uncertainties about nearly everything these days, and politics and governments are no exception. We have had some by-elections, and certain seats have been held by the Government, but others have been lost and the net result is not favorable. Its parliamentary majority is none too large—just an ordinary working lead. There will be more by-elections this year. At this writing, three seats are vacant and another potentially so because the member intends to quit, and his resignation will go in whenever the Government says the word. Then we are to have Cabinet reconstruction, with the withdrawal of old but not necessarily bad



Photograph courtesy Exhibits & Publicity Bureau, Department of Trade and Commerce
A view of the Bow River, showing the Banff Springs Hotel and Mount Rundle in the background



The Princess Colliery of the Nova Scotia Steel & Coal Company, Sydney Mines, N.S.

blood and the infusion of some new and redder corpuscles. This process, also, will necessitate by-elections. Upon the outcome of these contests, which will be fairly widespread throughout the country, will determine, vitally, whether this Government will go to the end of its constitutional tether or whether dissolution will occur this year. If it wins in these seats or in most of them, it will be construed as a clear mandate to go ahead and carry on. If it encounters reverses and the crippling conditions they would entail, then dissolution would appear to be not only the natural, but the absolutely inevitable thing. These by-elections, primarily, but also to some extent the internal developments of the present session, will be the great determining factors of the question, when the people will be consulted in any appeal to the country. It would be utterly useless now to make any confident prediction. It depends upon the people themselves. The Government's plan, clearly, is to stay till the end, but if, within or without, it encounters perversity, the general election will come correspondingly sooner. Not a little of this session is being devoted to the process of electoral education, looking to the eventual presentation of the case to the jury of public opinion.

The legislative program makes up in quality what it lacks in quantity. Outstanding in importance is the revision of the tariff. There has been an exhaustive inquiry throughout the country and a variety of views have been presented, but it is not misstating the fact to say that the bulk of the opinions given have been in favor of leaving things pretty much as they are. In the West some radical views were put forth, but not much elsewhere. When the budget comes down we may expect many changes, but changes great in number do not entail, necessarily, any vital variation in the principle. It is the principle that counts, not the operative detail. We have no reason to expect any change in the former, because it has been made as clear as possible that none is contemplated. The adopted policy of the present ministerial party is none other than the National Policy. It is that which the Prime Minister has preached from a hundred hustings since he took office, and it is the same declaration which finds a significant expression in this year's speech from the Throne. Nothing, therefore, justifies any apprehension as to what is going to be done with the tariff. The superstructure will be changed somewhat, possibly very considerably, but the underpinning is to be left severely alone.

Few who size up the present condition of flux and fluidity and the probable fiscal developments outside as they will affect Canada, will come to the conclusion that any other course is desirable for the time being, at all events.

Canada is a parcel of the League of Nations, and in the legislation of the session, in a bill which gives contractual effect to the undertakings of our representatives at the League Assembly. We are right in it with the full status of a nation, the estimates contain provision for our share in the upkeep of the world peace organization, and we are to have a representative in the permanent court of international justice; the great and instrumental tribunal for international amity. The discussions have developed the wisdom of being a factor in what seems to be the world's greatest spiritual and humanizing agency. Then, provision is to be made for Industrial Research. We have in Canada resources of untold wealth, and the process of development is well advanced, but much of it has been on the hit or miss principle. The object of the Scientific and Industrial Research Council is to apply science to industry. It has done much already in that direction, but the great need is for more research, and there can be no proper research without proper equip-

ment in a national laboratory. That void it is proposed to fill this session by the instrument of the legislation on the subject to come before the House. For years they have been trying to put through a Copyright Act. It has strong proponents and much opposition. Copyright in Canada is in a state of marked uncertainty. If you inquire just what it is and how it stands, you are liable as not to see public officers throw up their hands in doubt and despair. The object of the present Bill is to clear the air of long prevailing uncertainties. Our Board of Commerce had a rather inglorious finish, and it is to be doubted if ever another of the kind comes back because, after all, the law of supply and demand and not arbitrary tribunals should be the governing consideration in price fixing. But there is some apparent need of a combine law and the old one didn't work, and it is estimated that there will be a new one. If it be presented as intimated, this will be an important piece of legislation. There is a great crop of private bills, with the bulk of them asking, through divorce, relief from domestic disorders.

It is an interesting session, withal, full of the spectacular, full of anticipation and expectancy, and not lacking in those intense episodes in which party feeling and prejudice find often an unrestrained expression.

The railway situation comes before Parliament this year in a form that is peculiarly aggravated and calls for exceptionally drastic treatment. The whole history of government ownership of railways is one of cumulative deficits. Go back to the old days of the Intercolonial, built under exceptional conditions, and you find it, year by year, running short. Political patronage, undoubtedly, played a very great part in the situation. A new Government came in and established a board of management designed to apply business principles, and while some improvement was made and actually a surplus, by book-keeping, was worked out, the financial situation really was no better. Then came the great adventure of building the Transcontinental and the Grand Trunk Pacific. On top of them was Mackenzie and Mann's Canadian Northern, most extensively assisted from out of the public treas-

ury, but always, like Oliver Twist, calling for more. Next, the Grand Trunk developed the predominant disability and kept coming, year by year, for assistance to itself and, especially, its offspring the Grand Trunk Pacific.

In the end the Government adopted the policy of buying, outright, all these sorely embarrassed utilities, taking their assets and, of course, their liabilities, simply ponderous in their proportions. For the first year the deficit was around fifty millions or, at least, that much was admitted. This year it tops the mark with seventy millions of admitted shortage and some 128 million in actuality, using, in the latter connection, the figure of the former Controller of Railway Statistics.

A total of 128 millions is a lot of money to be shy of, and well may Parliament be according to the situation that serious consideration which is called for. If this business is to go on; if, year by year, the National Railways are to be a great sink hole for public moneys, not only will many essential services be dwarfed, but the

Continued on page 55



Photograph, courtesy Canadian Pacific Railway

No section of the world offers greater bear hunting than British Columbia

HAROLD BONN



The Voice of Spring

By Felicia Hemans

I come, I come! ye have called me long,
I come o'er the mountains with light
and song;
Ye may trace my step o'er the waken-
ing earth,
By the winds which tell of the violet's
birth,
By the primrose stars in the shadowy
grass,
By the green leaves opening as I pass.

I have passed o'er the hills of the stormy
North,
And the larch has hung all his tassels
forth,
The fisher is out on the sunny sea,
And the reindeer bounds through the
pasture free,
And the pine has a fringe of softer green,
And the moss looks bright where my step
has been.

I have sent through the wood-paths a
gentle sigh,
And called out each voice of the deep-
blue sky,
From the night-bird's lay through the
starry time,
In the groves of the soft Hesperian
clime,
To the swan's wild note by the Iceland
lakes,
When the dark fir-bough into verdure
breaks.

From the streams and founts I have
loosed the chain;
They are sweeping on to the silvery main,
They are flashing down from the moun-
tain-brows,
They are flinging spray on the forest-
boughs,
They are bursting fresh from their sparry
caves,
And the earth resounds with the joy of
waves.

Away from the dwellings of care-worn
men,
The waters are sparkling in wood and glen;
Away from the chamber and dusky hearth,
The young leaves are dancing in breezy
mirth,
Their light stems thrill to the wild-wood
strains,
And Youth is abroad in my green domains

A. Stone.



ON LAKE AND STREAM IN CANADA



The Launcelot of Fishes

HERE are those who have been

prone to state that the ouananiche salmon is the gamiest fish found in the waters of North America; that as a fighter at the end of a taut leader he is beyond comparison with any other finny warrior of the cold waters; that whatever of a reputation has been attained by the Atlantic salmon, the ouananiche outclasses it on each and every score and abides the peer among the freshwater fishes of this continent. Angling authorities of note, past and present, have commented upon it and its life, and never has a word crept into print leading one to believe that the fish is anything but the leader of them all. Time was when men journeyed far to fish for the salmon and ouananiche of the Canadian rivers and lakes. Now, their numbers have been greatly diminished. Once, salmon fishing was a rage, and vast volumes were written on the subject. Now, one is surprised to find one short sketch devoted to the art and the excitement of it. It has been an enjoyment of the few.

When we turn our attention to the ouananiche salmon we always remem-

The Story of the Ouananiche Salmon is Here Told; Data on Historical Aspects; Range; How it is Fished for.

By Robert Page Lincoln

ber the words of praise spoken for it by that world-known angler, poet and writer, Dr. Henry Van Dyke. Of the ouananiche of Lake St. John he has written:

"Here let me chant thy praise thou noblest and most high-minded fish, the cleanest feeder, the merriest liver, the loftiest leaper, and the bravest warrior of all the creatures that swim. Thy cousin, the trout, in his purple and gold with crimson spots wears a more splendid armour than thy russet and silver, mottled with black, but thine is the kinglier nature. The old salmon of the sea who begot thee long ago in these inland waters became a backslider, descending again

to the ocean and grew gross and heavy with coarse feeding. But thou, unsalted salmon of the foaming floods, not land-locked as men call thee, but choosing of thine own free will to dwell on a loftier level in the pure, swift current of a living stream both grown in grace, and risen to a better life. Thou art not to be measured in quantity, but by quality, and thy five pounds of fleshless pure vigor will outweigh a score of pounds of flesh less vitalized by spirit. Thou feedest on the flies of the air and thy food is transformed into an aerial passion for flight as thou springest across the pool, vaulting toward the sky. Thine eyes have grown large and keen by peering through the foam, and the feathered hook that can deceive thee must be tied deftly and delicately cast. Thy tail and fins, by ceaseless conflict with the rapids, have broadened and strengthened so that they can flash thy slender body like an arrow up the fall. As Launcelot among the knights, so art thou among the fish, the plain-armored hero, the sun-burnt champion of all the water-folk!"



Photograph by W. H. Robinson, Official Photographer, Canadian National Railways

A view of the Restigouche, whose salmon fishing has made the Province of New Brunswick famous everywhere



Photograph, courtesy Canadian Pacific Railway

Yes, a scene in the "Free Province of Quebec," not in the land of the Eighteenth Amendment

A brilliant description, you say; a rhapsody, in fact. Van Dyke has written as only a true angler and poet can write, and what he has said of this peculiar salmon is well merited, for if accorded a lesser fish it would be in the sense of an exaggeration. The ouananiche is everything that has been said of it and more. To say that it is Canada's most noble fish is to advance not an illusive theory but a concrete fact. That the ouananiche salmon has been classed by ichthyologists as a land-locked fish may not be borne out in fact, for it has been settled now that the ouananiche can run down to the ocean like the sea-run Atlantic salmon. That he does not do this is, as Van Dyke states, a sign of his greater character; that he prefers the cleaner insect diet to the gross feeding that its cousin the Atlantic salmon undergoes in the sea, where spawn and herring and shrimp all go down as one. But so it is that

the ouananiche salmon has been classed as a land-locked fish and is linked up with the Sebago salmon (*Salmo sebago*), found in the State of Maine. But, technically, there is not a great deal of difference between the sea-run eastern salmon and the land-locked salmon. And why are they called land-locked? These fishes are called land-locked from the fact that a great time ago, when the earth was undergoing revolutionary changes, these fish were supposed to have been hopelessly walled in and could not get out of their native lakes up which they had gone, but must remain there, to feed, grow and thrive in these waters. It has been pointed out that these salmon have by nature become innate adherents to the freshwater life; that there are really streams by which they can reach salt water, but that they consistently avoid the impulse to descend the streams in contradiction to the feeding instincts

of their relative, the Atlantic salmon (*Salmo salar*).

"The ouananiche does not differ greatly from the Atlantic salmon," writes David Starr Jordan, "and is apparently even more closely related to the Sebago salmon. Some ichthyologists, and many anglers, have maintained that all three are identical, and that the Sebago salmon and the ouananiche are not worth even a sub-specific rank. But specific or sub-specific rank is not determined by the amount of greatness of differences, but rather by their constancy. However small the differences might be, if they are real and constant, and do not intergrade, they indicate specific distinctness; however great they may be, if not constant, or if they show intergradation, they can be of no more than sub-specific value. Sub-specific characters are usually associated with more or less definite geographic or environmental isolation, and the characters of the sub-species and those of the patent species will intergrade where the two habitats join or overlap. It seems certain that both the Sebago salmon and the ouananiche are geographically isolated forms, each possessing characters by which it is readily distinguished from the other, and from the Atlantic salmon as well. Whether the differential characters intergrade or not, has not been fully determined. If they do not, then each should rank as full species and bear a binomial instead of a trinominal name."

Differences between the Atlantic salmon (*Salmo salar*) and the land-locked salmon are notably as follows: The head of the ouananiche is more solid and determined in conformation; also the eyes of the ouananiche are larger; the general outlines of the fish are more plump in proportion to its length. This is more readily noted when two specimens of the conflicting types are laid out side by side. The spottings are far thicker, more numerous on the land-locked salmon and if anything they are larger, and the boldly traced Saint Andrew's cross-marks are set near to each other. In speaking of spottings it will also be noted that the land-locked form have these on the gill covers, sometimes round, sometimes otherwise, but by far more distinct upon this fish than upon *Salmo salar*. Larger teeth are also noted in the ouananiche; it has a broad tail and the fins are well and strongly built for the breasting of rapid waters. These above-mentioned distinguishing characteristics may seem small but they are in all events reliable. The ouananiche does



Photograph by S. J. Hayward, Montreal
A picturesque view in the Saguenay River Country

not attain to a great size. Indeed, large specimens are always wanting; smaller ones averaging from two to four pounds are commonly met with. There is no doubt that some large specimens of this member of the salmon family have been captured; indeed, it has been heralded abroad that eight pounders have fallen to the artificial lures, but of this I fail to have more than one record. The ouananiche is found in profusion in Lake St. John, Quebec, and is also found in vast numbers in the streams of Labrador, where it may, of course, be angled for in any one of many ways, the use of the artificial fly naturally being the recommended system, although the live bait may win where other methods fail.

The earliest reference that we have to the discovery of the ouananiche salmon dates back to the year 1647. That is a long time ago. In that year, the Jesuit Father De Quen stood on the shores of Lake St. John and among other things made note of the immense number of fish that he saw in the waters. Upon catching a number of them and examining them, he came to the conclusion that they were some form of salmon, if not a true salmon, and wrote so in his journals. The natives of that region called the fish "Wan-nan," a term they made use of when one of these fish came to the surface, said to mean "There!" or "There he is!" In any event it remained *Wan-nan* until the influx of the early French settlers when the name was changed. The Indians from the earliest days had killed most

of the fish that they made use of with flint-headed spears or shot them with arrows. The French, however, introduced a method of capturing this fish unknown to the Indians—the net. So the term used in designating this fish became "*Wannan-iche*." That is how the name would sound written out in pure English. The French possessing no "w" in their vocabulary substituted the "ou," which, of course, stands for "w". So we have the present-day name of this fish "*ouananiche*."

The range of distribution of the ouananiche salmon is probably greater than men have any idea of. It is now a fairly well-known fact that the

major portion of the Labrador peninsula possesses the ouananiche in abundance, the terminus of the range, however, being the western slope of Labrador, eliminating that territory that drains into Hudson Bay. Up to the year 1895, it had been thought that Lake St. John and its streams was the only home that this fish had. But in that year the Geographical Survey of Canada sent an expedition into Labrador headed by Mr. A. P. Low. From the region of the Hamilton River and the Ashuanipi he brought back skins of this fish in a preserving fluid. It was then found that the ouananiche had a northern range of distribution that had never been suspected as possible.

"The angler who would find the ouananiche and fight it under the varying conditions in which it may be found in Labrador," writes Mr. E. T. D. Chambers, one of the foremost authorities on the fishes of Canada, "must traverse a vast region of mountain and lake and forest and stream, as practically unknown as the interior of Africa, save to the Montagnais and Nascapee Indians, whose hunting grounds it is. For countless centuries the aboriginal Red Man with his bone or stone-pointed spear snatched from the rapid water in which the fish is found the biggest specimens that came to the surface in the quest of insect food. It has been perfectly well established for a score of years past that the habitat of the ouananiche is co-extensive with the great Labrador peninsula, excepting only the latter's western slope. In 1894-5, it was found in the Koksoak River for a distance of nearly two hundred miles below Lake Cani-pascow, and



Photograph by Robert Page Lincoln.
It is in such streams as these that the land-locked salmon is found at his best



Photograph by Robert Page Lincoln

A sequestered lake in the Georgian Bay District of Ontario

the lake and river stretches of the upper part of George River, which also empties into Ungava Bay. On the eastern watershed the same fish was caught on both branches of the Hamilton River, above the Grand Falls, and also in great Lake Michikamow at the head of the Northwest River. That it is not a land-locked salmon is patent to the most ordinary observer. In the Lake St. John waters, where it is best known to most writers on the subject, it has unobstructed access to the sea by way of the Saguenay River and the Lower St. Lawrence. The most accessible ouananiche waters are in the Grand Descharge of Lake St. John, but they do not contain the biggest fish. Many visit them annually to experience the sensation of shooting the rapids in Indian canoes of birch bark. Large and plentiful as are the ouananiche in the Metabetchouan River, and wild and beautiful as is the scenery of the Grand Descharge, the angler after sport and adventure of the most attractive kind will prefer to scale some of the mighty wild ouananiche rivers of the interior of Labrador. Take the Peribonca, for instance; nearly three hundred miles from the mouth is Lake Manouan, containing ouananiche from five to eight pounds in weight. Several years ago, I ascended the Peribonca for fifty miles, as far as Lake Tschotagama, and the trip occupied a week, nearly four days being required to ascend the stream. In that distance ten large water-falls had to be portaged around; it was necessary to pole the canoe up furious rapids and to camp in bear-infested woods, more than a score of miles away from any human habita-

tion. But the scenery was of the grandest and the most magnificent description and the fishing in the pools below the falls is marvellously good. In Tschotagama it was simply wonderful. *There, it is no unusual experience to have a brace of ouananiche at the same time upon the rod, each weighing five or six pounds.*"

As a rule the ouananiche is very chary about taking the fly for it is about as keen a fish as to eyesight as swims water, hence is not to be captured on any fly that is cast to him. There are, however, exceptions to the

rule, for in the Grand Descharge this lusty little fighter will take the fly often with the avidity of the grilse. Such fishing may be had throughout the month of June, and at least half of the month of July; after this time they are very slow at rising, and only live bait, apparently, will win a capture. During the month of July, the ouananiche may be taken in Lake St. John, and there are some who hold that the month of August is the best time to go out for them in the waters of this lake. When live bait fishing for the ouananiche is followed up, large minnows of various sorts prove attractive, not to forget the perch. But care must be made that the minnow lure rides back up in the water, else it will prove anything but attractive to the fish. The swivel system used in collaboration with the hook will prevent the minnow from turning and the line from kinking; this answers not only for this form of fishing but for all fishing (deep fishing) of this sort. The ouananiche, in common with other fish that live in the cold waters of the north, are extremely sensitive to the heat. In this respect, they are much like the brook trout and the lake trout. Thus, in the middle of the summer, you will fish near to the surface in vain. You will be forced to sink your lure as close to the bottom as possible to have any luck in your adventure. If you can find the deep places, like in

Continued on page 56



Photograph by W. H. Robinson, Official Photographer, Canadian National Railways
A view of the famous Nipigon, Canada's premier trout stream

Canada Through the Camera



British & Colonial Press Photograph

The Canadian bred "Roxton Mickey," of Toronto, which carried off all honors in the English bull dog class at the recent Westminster Kennel Show in New York



British & Colonial Press Photograph

The Canadian Producers Association holds its annual convention at Macdonald College, Ste. Anne de Bellevue, Que.



British & Colonial Press Photograph

Hon. Arthur Meighen, Premier of Canada, was recently entertained at a public banquet by his Montreal admirers. From left to right are: Sir Hormidas Laporte, Senator Lorne C. Webster, Mr. Geo. Sumner, Hon. P. E. Blondin, Dr. Armstrong, Hon. C. C. Ballantyne, Premier Meighen, Hon. Hugh Guthrie, Sir Louis Tellier and Hon. J. A. Doherty



British & Colonial Press Photograph

Lady members of the Montreal Amateur Athletic Association compete for honors in one of the most successful aquatic meetings held in Montreal in many years



British & Colonial Press Photograph

A Montreal motor cyclist's ingenious device for overcoming winter's traffic difficulties



British & Colonial Press Photograph

The New Glasgow Ladies' Hockey team, this season's champions of the Maritime Provinces

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Ships and Shipping

"FOR the first time in a century on the principle of free navigation on international rivers is in danger," writes Mr. R. Gelpe, Member of the Swiss Parliament, in the *Nautical Gazette*, New York. "The most important and natural inland waterway of the European continent is the Rhine, which connects the most frequented commercial area of the southern part of the German Ocean with the Alpine region of Central Europe. The length of the natural water course between Rotterdam and Bâle amounts to 545 miles. Of this, a section of 80 miles, being the southern end between Bâle and Strassburg, it is now proposed to sacrifice.

"Regional interests, mainly directed towards utilizing locally the water power of the section mentioned, have started a scheme for establishing on the left, or Alsatian bank, a canal some 80 miles long, with numerous locks. When carried out, this plan would substitute for the shipping traffic between London, Antwerp,

Rotterdam, Amsterdam on the one hand and Bâle, the focus of the traffic of the Central European continent, on the other hand, an artificial territorial water course with 8-10 lock levels in the place of the open, lock-free, international waterway of the river Rhine, with its unlimited facilities for increasing its capacity for traffic.

"The Alsatian-French point of view has been made known by innumerable pamphlets, speeches, newspaper articles. Its aim is to favor exclusively the Alsatian-French canal system, the Atlantic and Mediterranean commercial ports of France, the agriculture of Alsace (through irrigation from the Rhine), and Alsatian-French industry (through power stations to be established on the Rhine). By virtue of Art. 358 of the Versailles Treaty, granting to her the exclusive right of exploitation of the river from Bâle to Lauterburg (frontier of the Palatinate), France now claims to dispose of the inter-

national Rhine as she would of any purely French waterway such as the Rhone, the Loire, the Garonne, the Seine, or others.

"The contention that the relatively strong current (average fall between Bâle and Strassburg 0.87%) is specially favorable for the setting up of power stations is not tenable in so far as the same reason would call for a similar use of the water power on the stretch between Bingen and Coblenz, which also has a strong current and would offer the additional advantage of double the volume at low water. And with the same semblance of justification, the tide on the lower course of the Thames between London and its mouth, and the Scheldt between Flushing and Antwerp might be used to produce water power; all that is needed would be a suitable dam closing up the river mouths. But who would ever consider such a device?

"The power problem on the Rhine can be solved in a much more advan-



A view of the building berths of the Halifax Shipyards, Halifax, N.S.

tageous manner than the one indicated. Between Schaffhausen and Bâle, where the river is rendered unnavigable by numerous rapids, no less than 455,000 H.P. are waiting to be made available. The cost would be one-half of what the construction required on the Rhine below Bâle would demand. Switzerland would not hesitate to place part of this power at the disposal of the Alsatian industries on the most favorable terms, nor is there any lack of water courses for power stations in France. Reliable statistics show that on the French rivers, not including the Rhine, above nine million H.P. remain to be turned to use.

"A canal along the left bank of the Rhine between Bâle and Strassburg would make a very inferior waterway compared to the open Rhine. This is sufficiently borne out by the fact that such a canal is mainly advocated by Alsatians on the plea that Strassburg should remain the terminus of the navigation on the Upper Rhine, and that Bâle should be cut off from Rhine traffic. But there are a great many technical reasons for preserving the river itself as a waterway for big ships. These reasons have been pointed out in numerous publications.

"In the first place it must be kept in mind that the open Rhine on the stretch between Strassburg and Bâle

is even now navigated by large vessels. Tugs of 1,400 H.P. and freight barges of 1,300 tons capacity ply freely on it from 180 to 200 days a year. More than half a million tons of freight goods have been carried on the Rhine from Rotterdam to Bâle and from Bâle to Rotterdam since 1905. In the two years immediately preceding the war, 1913 and 1914, 100,000 tons of goods approximately were shipped to and from Bâle. If the shipway were kept open by means of regular dredgings, and other measures facilitating navigation adopted (notably the prompt and sufficient opening of the pontoon bridges), the yearly traffic at Bâle might even to-day amount to a million tons.

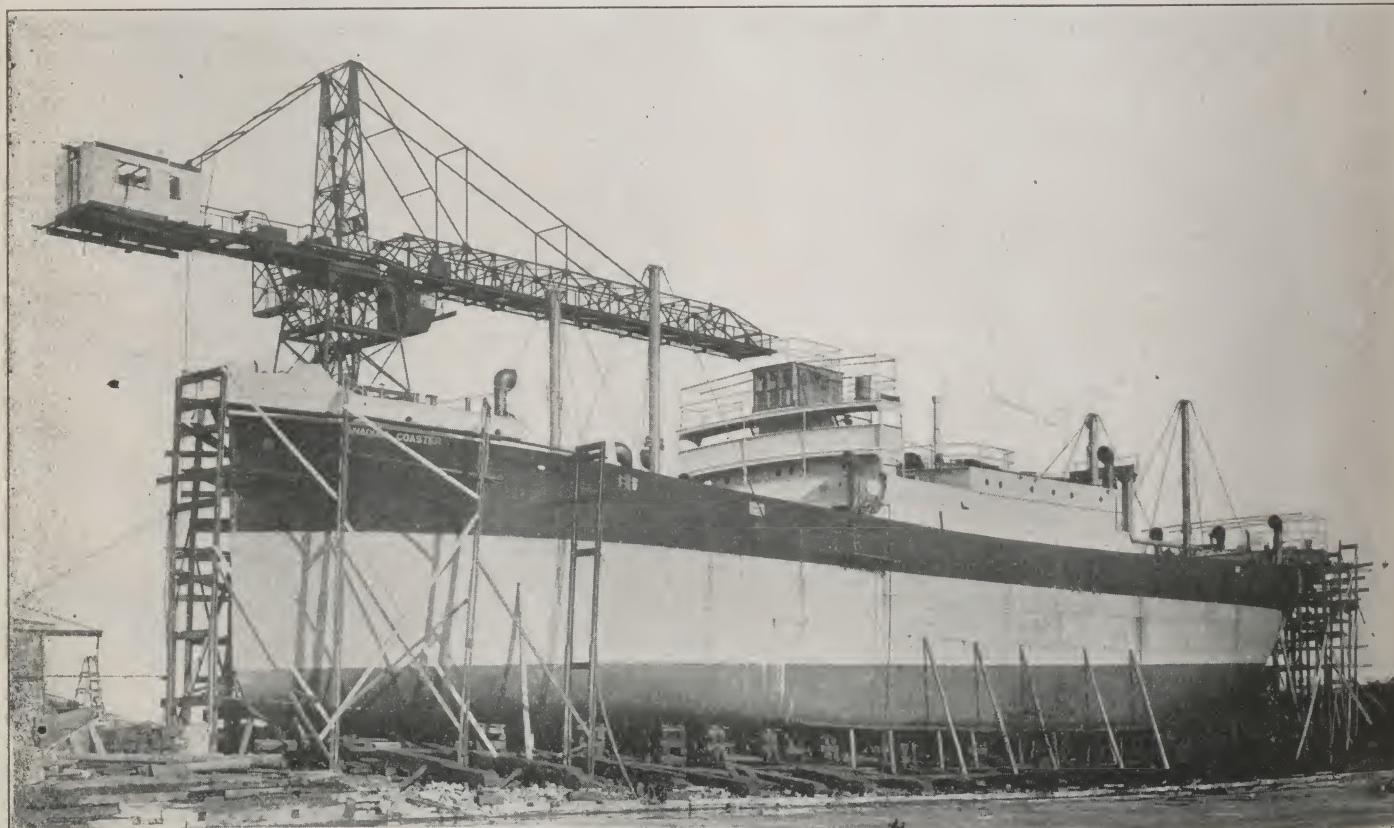
"The first thing to be achieved is the creation of uniform depths and an unbroken fall. This can be achieved by confining the river bed to one compact channel, doing away with the splitting tendencies of the current, which have hitherto caused the formation of a so-called main channel with a number of secondary channels. The river channel would be regulated with the aid of dikes and conduits.

"On a stretch of 440 miles, from Rotterdam to Strassburg, the work of regulation is completed in the main. From the Rhine mouth up to Strassburg, on an average of 318 days, the minimum low water depth is two

meters. The regulation between Mannheim and Strassburg was completed only a few years ago. The character of this section, as regards its unruly tendencies, was altogether similar to that of the stretch from Strassburg upwards, the estimated cost of regulating which would at pre-war prices amount to some 30 million francs. Within ten to twelve years the open and lock-free Rhine could be uniformly regulated between Rotterdam and Bâle, a distance of 512 miles.

"A waterway of unlimited capacity would thus be created. The yearly traffic might be raised to, and maintained at, twenty million tons, with vessels of 2,000 tons and more going right up to Bâle. As to the swiftness of the current, which owing to the rather considerable fall of 0.87% averages about three meters, experience has amply proved that it can be overcome. A paddle steamer of 200 H.P. will tug a freight load of 2,200 to 2,400 tons, either in one vessel or on two barges, from Strassburg to Bâle in 32 to 36 hours. Down river the distance from Bâle to Strassburg is covered in 5 to 5½ hours.

"Certain fast freight steamers run the stretch up river in 12-13 hours, down river in 5 hours. A fast freight steamer fitted with searchlight will reach Coblenz within twenty-four



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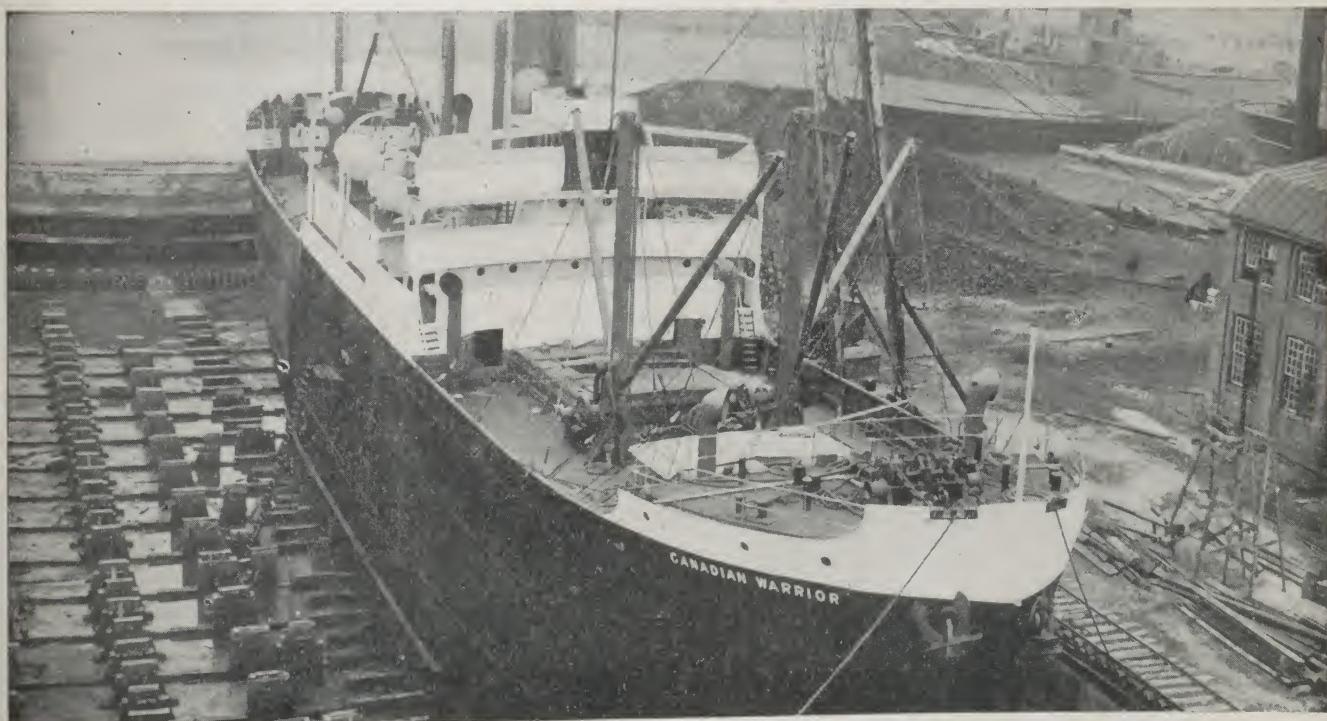
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"When the rule and sway of the Rhine passed from Germany to France there appeared in Alsatian journals articles opposing the continuation of the Rhine navigation beyond Strassburg and up to Bâle. They demanded that the basin of Strassburg should be made into a terminus harbor. The shipping traffic to Bâle was to be confined to the Alsatian canal, namely the Rhine-Rhone-Hüningen canal (81 miles), which it was proposed to enlarge sufficiently to carry 280-ton vessels. And even though, at a later time, a canal should be constructed along the Rhine for power exploitation, it was to have dimensions allowing vessels of only 600 tons, 800 to 1,000 tons at the very outside. The shipping traffic to and from Bâle would have to pass through Strass-

burg harbor. Here the goods would have to be transferred from the big Rhine barges of 1,500 to 2,000 tons to the canal barges of 280 tons (or, on the new canal of 600 tons) to be towed to Bâle on these small and medium barges. Strassburg thus claims to control the whole traffic to and from Switzerland."

□ □ □

During November 468 ships of 529,939 net tons entered the port of Hamburg as compared with 256 ships of 188,533 net tons in the corresponding month of 1919. For the first eleven months of the years hereinafter named, the number and net tonnage of vessels arriving at the port was as follows:

Year	No. of Ships	Net tons
1920	4,369	3,892,940
1919	1,854	1,303,629
1918	1,330	672,253
1913	13,895	13,006,426

There are said to be 67 foreign steamship lines plying from Hamburg at the present time. Among those operating regular services are 22 English companies, 11 Dutch, 6 Norwegian, 5 French and 4 Belgian shipping concerns. The United States

is represented by only a few companies.

□ □ □

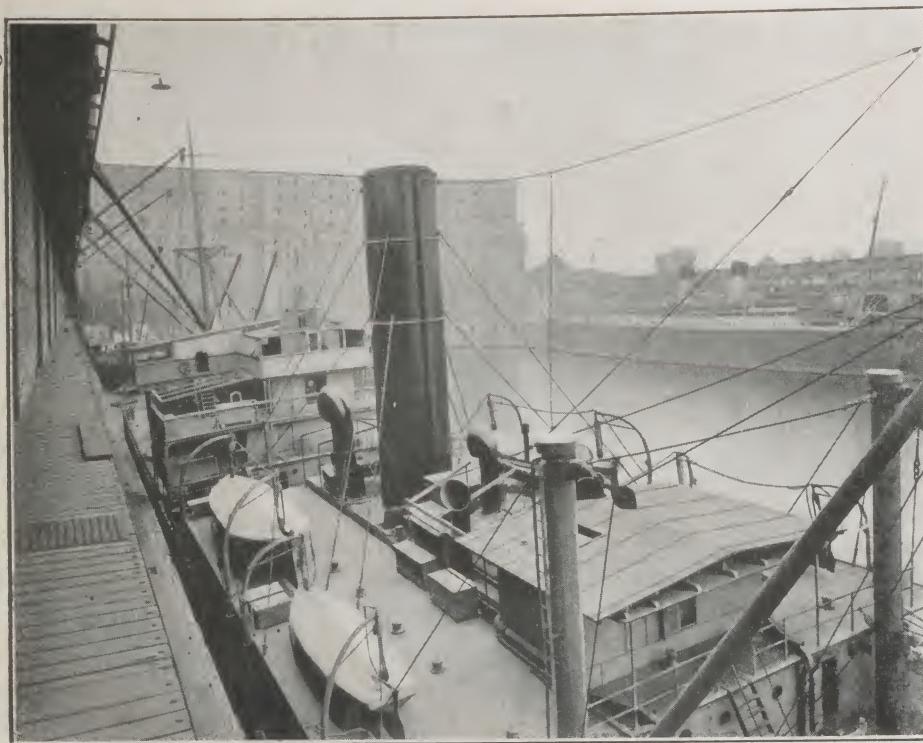
"India is to-day, from an economic standpoint, a comparatively young country, and signs are not wanting that the next few years will be marked by vast industrial developments and expansion throughout the land," says *The Syren and Shipping*, London. "In these developments the Port of Bombay, the premier port of India and the great gateway of our Eastern Empire, is certain to play a particularly important part. A brief description, therefore, of the accommodation available at the port and the terminal facilities provided for the expeditious handling of merchandise of all kinds, may be of interest.

"The Bombay Port Trust was constituted by Act of Government in 1873, when certain properties were acquired at considerable expense from numerous private companies which had hitherto enjoyed a monopoly of the landing and shipping facilities of the port. Six years later the Government purchased on behalf of the Trust the rights of the remaining private foreshore owners, and at the same time



Photograph, Copyright, Underwood & Underwood, N.Y.

Fishermen mending their nets which were broken by the weight of their catch in the West Cornish mackerel fisheries



A corner of the Harbour of Montreal

reconstituted the Trust. From that date onward the history of the Port Trust has been one of almost unbroken progress and prosperity.

"Some idea of the rapid growth of facilities at the Port of Bombay may be gathered from the fact that prior to 1880 there was only one small closed dock in the port, namely, the Sassoon Dock. In 1880 the Prince's Dock was opened, in 1888 the Victoria Dock, in 1891 the Merewether Dry Dock, and in 1914 the Alexandra Dock and Hughes Dry Dock.

"Apart from the additional wet and dry dock accommodation provided at Bombay in recent years, much has been done in the way of developing the railway facilities at the port, and the improvement of the methods of dealing with goods in transit to and from steamer. In days gone by, the only means of conveyance between steamer and dock warehouse, and warehouse and railway, was by bullock-cart. Merchants had to cart their goods in this fashion from ship to warehouse and from warehouse to railway, or *vice versa*, and the working was necessarily both slow and uneconomical. To accelerate the movement of merchandise between steamer, dock warehouse and railway, there was opened in 1915 a railway some 100 miles in length serving all parts of the docks estate.

"The Port Trust Railway is complete in itself, and consists of three main sections, viz.: (1) the dock area, comprising sorting yards for dealing

with import and export traffic, and sidings serving the berths and transit sheds; (2) the depot area, where merchants receive, store and despatch goods for export; and (3) the Wadala marshalling yard, where wagons are sorted and made up into trains for the docks, or distributed among trains to

the two main line railways—the Great Indian Peninsula and the Bombay, Baroda and Central India Railways.

"The working out and the application of a complete scheme of rail communication at the docks was a simple matter in the case of the Alexandra Docks, which were constructed with this end in view. At the Prince's and Victoria Docks, which were constructed long before the project of a port railway had been mooted, the problem was by no means so simple. Even at the older docks, however, it has been found possible to serve all the transit sheds by a copious provision of siding accommodation, and rapid and certain despatch between warehouses and docks, and *vice versa*, is thereby assured.

"The arrangements in force at the Alexandra Dock for dealing with import and export trade may be taken as typical of the economic and speedy manner in which merchandise is handled throughout. On the west side of the dock is a sorting yard, in which are received all the railway wagons which are to load merchandise from the ships and convey it to the depots, where it awaits the convenience of consignee for despatch to destination. The east side of the dock is reserved for the export trade, and has its own sorting yard, wherein trainloads of goods, made up at Wadala or else-



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A scene in the Harbor of Shanghai

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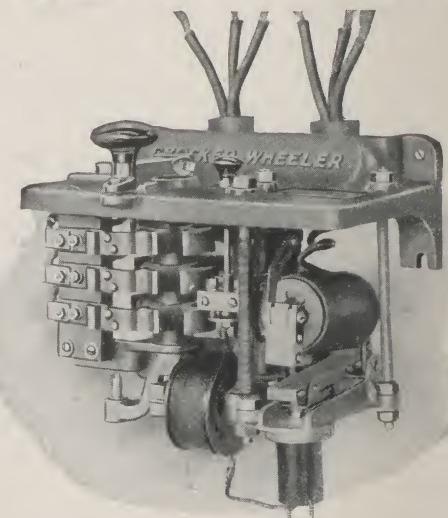
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where, are marshalled and broken up so that the wagons may be distributed for unloading, each at its appointed shed. Three sheds are provided on the eastern side of the dock; five on the middle jetty, and six sheds and three large warehouses on the western side. The usual echelon arrangement of sidings has been followed, a matter of particular importance in view of the various speeds at which ships load and unload.

"Very ingenious are the plans upon which the various depots constructed on the dock estate have been designed. The two principal depots provided are those for grain and cotton. The grain depot serves the important grain and seed export trade of Bombay, and consists of six large sheds, 1,000 ft. in length by 100 ft., and six smaller sheds 500 ft. by 100 ft. The former are served by four railway sidings, and the latter by two sidings, the railway running alongside each shed in echelon lay-out, thus enabling traffic to be handled on any road without interfering with loading or unloading operations in the other sidings. The sheds are arranged between each double line of track, one track serving one shed and the other serving the second shed. Thus each side of

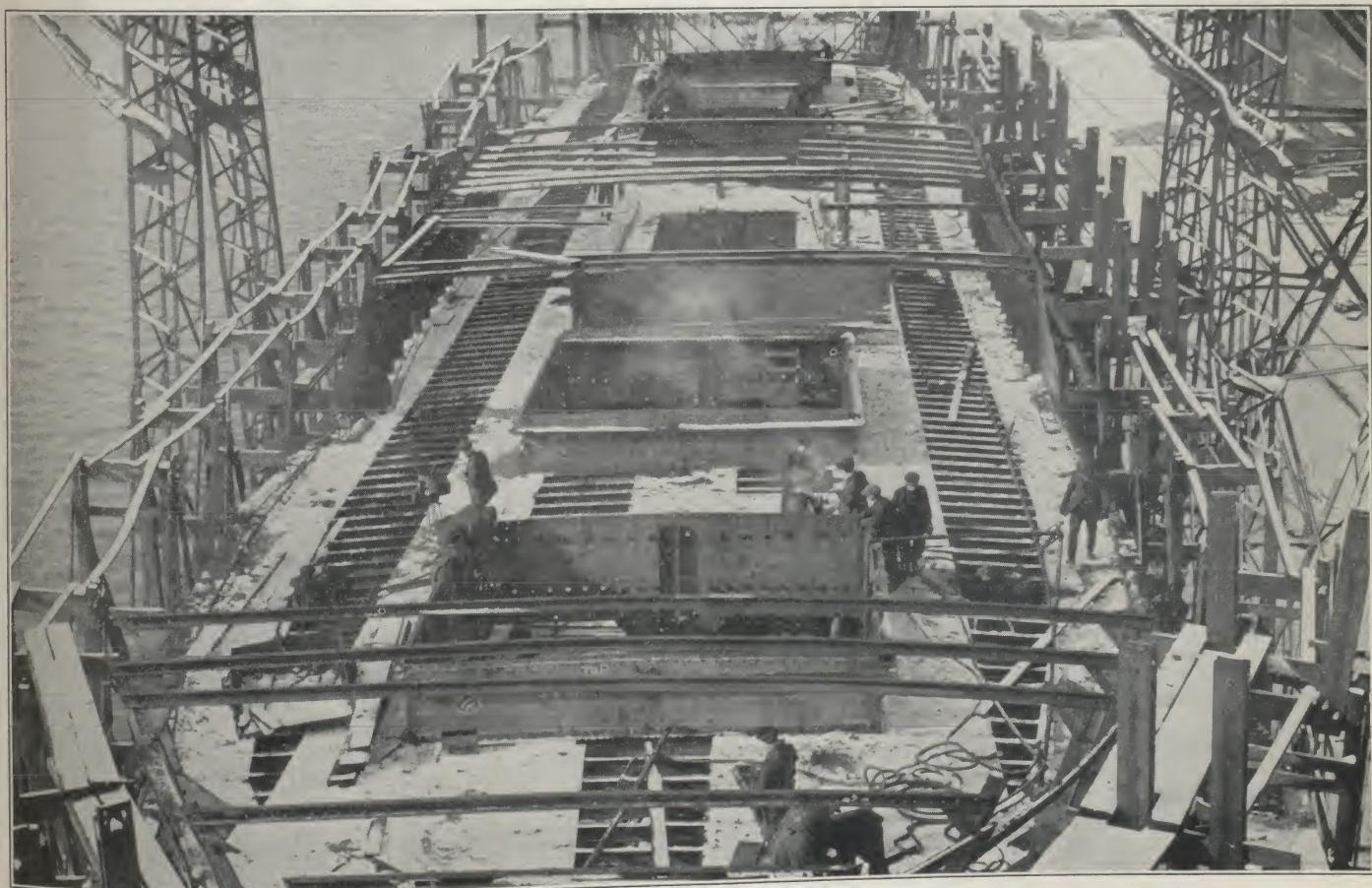
every shed has a line of railway exclusively devoted to serving it, it being possible, therefore, to reserve one side of every shed for in-going or out-going traffic, as the case may be. Further, the sheds are so arranged that the north side, say, of one, and the south side of the shed opposite are both served by trains going in one direction. The effect of this is that only inward wagons are in one road, and outward in another, much confusion and delay thereby being avoided. During the war the grain depot was largely utilized for military traffic, but to-day it is being put to the purpose for which it was originally designed, and the sheds and portions of them are leased to grain merchants as storage depots.

"To deal with the general trade of the port there is an extensive goods station at Wadala to handle the important salt traffic of the district, while there is also excellent accommodation for chemicals and explosives. To the south-east are bulk oil stations to deal with the vast quantities of kerosene oil which are received in Bombay for distribution to up-country markets, each of these oil installations having its separate siding which ensures rapidity of handling and

prevents confusion. Extensive timber yards and ponds are also provided, and much ground is given over to the dry fish trade. A new bulk petrol installation is also being installed in convenient proximity to the docks.

"At Wadala, the great marshalling yard for shipment traffic, there has been constructed a huge gravity sorting yard capable of dealing day and night with immense numbers of inward and outward wagons. All wagons are received here, and trains made up in accordance with the destination of the goods. Thus, on a large consignment of merchandise arriving for a ship lying in dock, a train is made up solely of wagons containing such traffic, and worked speedily down to the steamer. In a similar manner large consignments of traffic arriving from the docks are made up into train loads, transferred to the main line railway and despatched to destination.

"As regards the coaling facilities provided at the port, the crane facilities and the innumerable small details of dock equipment, everything has been designed to ensure expeditious and economical working. Very marked is the progress which has been made in recent years in the



A view of Hull No. 11, being completed for the Dominion Government at the plant of the Dominion Shipbuilding Company, Toronto, by the Collingwood Shipbuilding Company



gradual organization and centralization of the whole trade of Bombay. Before the facilities described were brought into being the trade of the port was widely scattered. Warehouses for the storage of all manner of merchandise were situated in every portion of the city, and this resulted in much uneconomic handling. The development of the railway terminal facilities at the port and the provision of improved storage accommodation has had the effect of creating a large and homogeneous area for serving the major trades of Bombay and has effected vast improvements in the methods of dealing with goods in transit. Thanks to the efforts which have been made by the dock and railway authorities, Bombay to-day possesses the finest dock accommodation in the East and its future progress would appear assured.

"We must not omit to mention, too, the mail steamer berth at the entrance to the Alexandra Dock. Formerly the steamers had to lie off shore and land passengers and mails by tender, but with the completion of this berth passengers disembark on the quay and proceed to the railway station alongside, or into carriages for the town—an arrangement which has been greatly appreciated by travellers."

Lake Titicaca, which forms the boundary between Peru and Bolivia and which is 12,545 feet above the sea, has an area of 5,187 square miles; the lake is 145 miles long and 69 miles wide, but the shore line is very irregular. Its average depth is 492 feet and the temperature of its waters 48 degrees Fahrenheit. Yearly rainfall in the Titicaca region is about 78 inches.

Lake Titicaca receives its waters largely from the melting snows of the surrounding mountains. The lake's only outlet is the Desaguadero, which flows southward and empties into Lake Pampa Aullagas, or Poopo; this lake is the second largest body of water in Bolivia. It is remarkable owing to the fact that from about 5,900 cubic meters of water that flow into it per minute, only 56 cubic meters pass out of the lake. It is believed that an unknown subterranean outlet, aided by evaporation, disposes of the remaining amount of water. The Desaguadero, connecting the two lakes, is about 200 miles long

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and is navigable for all flat bottomed steamers.

Small steamers transport freight and passengers diagonally across the lake from Puno to Guaqui, the latter being the Bolivian frontier and customs office. The boats are comfortable and the short voyage is interesting on account of historic association and many legends attaching to the lake and region.

□ □ □

The veracity of the old salts who loved to sit and regale the foc'sle with tales of sea serpents, giant squid, whales that towed a six-masted schooner for mile after mile are in a measure vindicated. The evidence is a hole in the teak wood side of the coast and geodetic survey steamer "Marinduque," remarks the Manila Times.

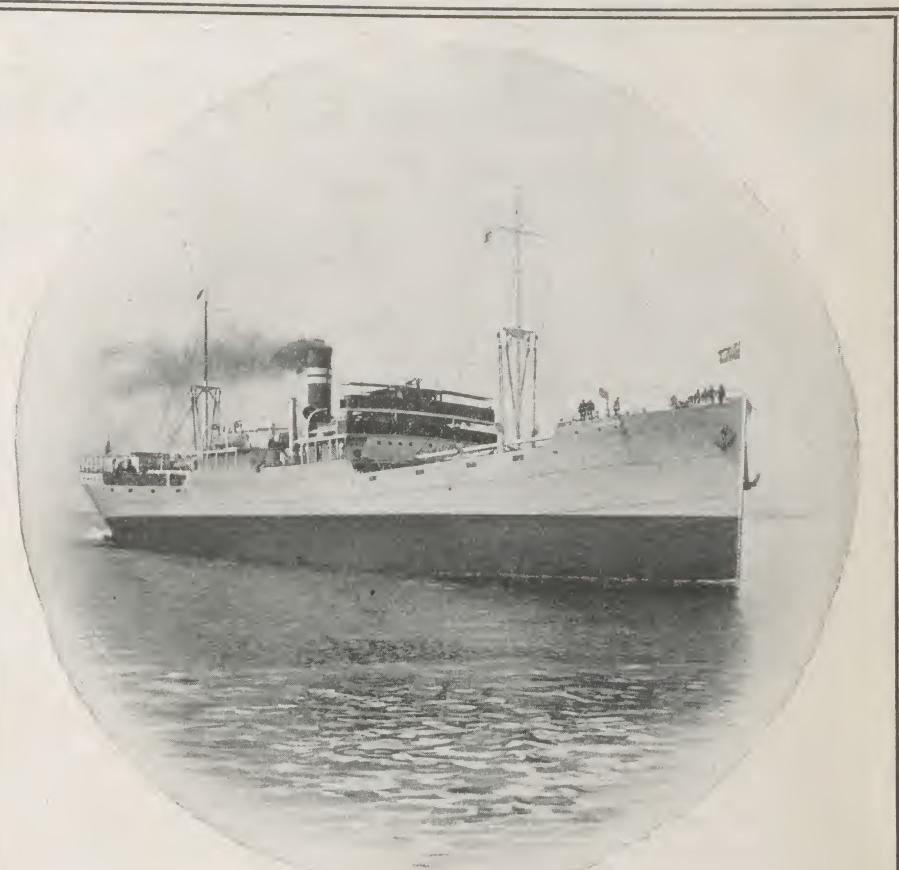
The curious thing was that no one saw the fish or felt the shock of impact when it drove its snout through the side of the ship. The point of the snout was driven through the No. 16 copper sheeting and three inches of solid teak which forms the hulk of the vessel and protruded about four inches into the cabin of a member of the crew. It was about 18 inches from the waterline and about seven inches from the floor of the cabin.

Two other authentic cases where swordfish attacked ships are known. In November, 1874, the S.S. "Cashmere" was found to be leaking while en route from Bombay to Calcutta. An investigation was made, but it was not until the part of the cargo forward was removed that the source of the leak was found. The beak of a swordfish was protruding through the ten-inch planking of the vessel and had split the planking for a considerable distance. The "Cashmere" was new and her timbers sound. The "Royal George," a British merchantman, suffered a like experience while in the Indian Ocean.

□ □ □

At the close of last year, the Norwegian merchant fleet consisted of 1,850 vessels of 2,370,000 gross tons. This is a net increase over 1920 of 150 vessels aggregating 400,000 tons as compared with a gain of 106 vessels of 152,000 tons in 1919.

As compared with the beginning of 1919, the Norwegian steamer tonnage has increased 375,000 tons and the motor vessel tonnage shows a net gain of 44,000 tons. On the



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other hand, sailing vessels show a net loss of 19,000 tons. Of the net increase of 400,000 tons reported last year only 45,000 tons were built in Norway. There are no wooden or concrete vessels now building in Norway, but the shipyards have orders for steel steamers sufficient to keep them busy for the whole of 1921. On January 1st last, foreign yards were building about 500,000 gross tons of shipping for Norwegian account.

□ □ □

"Canada's National Marine is making progress to a degree that is little short of phenomenal," says *Shipping*, New York. "It is only a little more than a year and a half ago that the first vessel, the "Canadian Voyageur" cleared from Quebec for the West Indies. To-day there are thirty-eight new steel ships in the fleet and these are sailing from Canadian ports to all of the seven seas. In addition there has been completed a joint arrangement with the British India Steam Navigation Company, easily the largest shipping company in the Orient, for a joint service between Canadian Atlantic ports and ports in India, the Straits Settlements, and Java, the Canadian Government Merchant Marine Limited and the British India Co. each to provide a similar number of ships. The British India Company and its agents will route Canadian rail business over the Canadian National Railways, and will secure cargoes and generally look after the vessels of the C. G. M. M. while they are in Far Eastern ports. The C. G. M. M. for its part will handle the vessels of the British India Company while they are in Canadian waters. Montreal, during the season of St. Lawrence River navigation, and Halifax, during winter months, will be the two Canadian ports used on this service.

"But this is not all. An agreement has been entered into with the Holt interests of Liverpool, England, for a joint service from Canadian Pacific ports to ports in Japan and China. The C. G. M. M. and the Blue Funnel Line (which is controlled by the Holt Company), will each have an equal number of ships in service, and the result of the new arrangement will undoubtedly be to expand considerably the volume of business being transacted between Canada and the Orient.

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"Regular services are already in effect between Canada and Liverpool, Glasgow, London, Cardiff, Swansea, Manchester, Barbados, Trinidad and Demerara, Kingston in Jamaica and Havana in Cuba, and to Bahia, Pernambuco, Santos, Rio de Janeiro and Buenos Ayres. Then in addition to these services to Britain, the West Indies and South America, there are services established from Canada to Australia and New Zealand, from our Pacific ports, the ships calling at Sydney, Melbourne, Newcastle, Wellington and Auckland in the Antipodes. There is a service from Canadian Atlantic ports to Charlottetown in Prince Edward Island and to St. John's in Newfoundland; and our ships are establishing communication between Canada and British India, calling at Karachi, Bombay, Rangoon, Colombo, Batavia, Sarabuya and Singapore. The day is not far distant when the ships of our Merchant Marine will meet in Calcutta in India, from both our Atlantic and Pacific ports. The true meaning of this is emphasized by the additional statement that these services in conjunction with the lines of Canadian National Railways constitute a Nationally owned transportation system that belts the world.

"Canadian National people may contemplate with pride the growth of the National Marine."



The Melbourne Harbor Trust Commissioners announced in August their intention to proceed at an early date with the first part of the program of comprehensive port development which was adopted in 1915, but was interrupted by the disturbances due to the war. The only thing delaying immediate inception of the actual work is a disagreement between the Harbor Trust Commission and the Victorian Railway Commission over a piece of land essential to the approaches to the new docks, and it is

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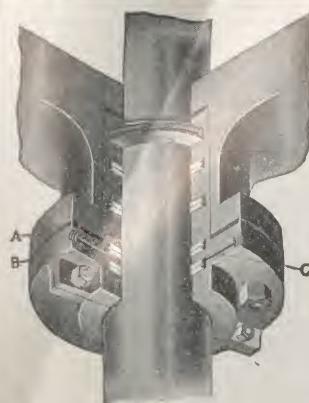
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expected that a settlement of this dispute will soon be effected. The harbor trust's plan has been devised to provide for the expansion of Melbourne's commerce for the next 50 years, but the work contemplated at present will be confined to completing four new docks adjoining the existing Victoria Dock. These docks, it is estimated, will take care of the traffic for at least 10 years to come, at a cost of about £6,000,000 (\$29,199,000).

Dock No. 1, the construction of which will begin as soon as agreement between the harbor trust and the railway commissioners is reached, will cost, it is estimated, about £1,326,000 (\$6,452,979), and will, with the extension of Victoria Dock itself, provide 20 additional berths. The water depths at these docks, as shown by the commissioners' map, will be 32 feet throughout.

Subsequently, as circumstances require, six docks will be constructed at Port Melbourne, south of the Yarra, with depths of water to 37 feet. The first of these docks will extend to the entrance to the Yarra. These docks will have a common entrance, involving the creation of a large new basin for the six. The Yarra will be dredged to 37 feet as far as the junction of the Yarra and the Maribyrnong Rivers, and to 32 feet above that point. The Maribyrnong will be dredged to 27 feet and widened to 300 feet, and a swinging basin will be constructed inside the junction of the Yarra and the Maribyrnong. Beyond this basin 83 acres of coal yards will be allowed for, with railroad and freight-handling facilities. On the Williamstown side of the Yarra dock and wharf accommodation to the extent of 14,000 feet will be provided as may be required for an increased export trade and for the handling of grain in bulk.

□ □ □

The White Star Line has purchased the steamship "Bismarck," the largest vessel in the world, for its Southampton-New York service. She is a quadruple screw steamer of 56,000 tons gross and was launched from the Hamburg yard of Blohm and Voos in June, 1914, just prior to the outbreak of the war. When ready for delivery to the Allies she will be taken to the Harland & Wolff yard at Belfast for her finishing touches. It is expected that she will be ready for service by April, 1922.



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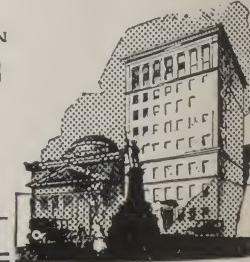


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Other units building for the White Star Line are the "Doric" of 16,314 gross tons for the Montreal-Liverpool run, the "Pittsburgh" of 16,600 tons for the Philadelphia Liverpool service, and a new "Laurentic," of 17,400 tons, designed to replace the liner of that name torpedoed off the coast of Ireland during the war.

□ □ □

The government of Australia now has a fleet of 39 steamers, aggregating 158,498 tons, and an extensive shipbuilding scheme is being carried on, which will result in considerable additions to this fleet. Canadian Trade Commissioner Ross, writing to the Weekly Bulletin of the department of trade and commerce, states that the Australian Government has announced that the primary object in establishing the fleet is not to make profits, but to prevent Australia being isolated through the world's shipping disruption brought about by the war. Sixteen of the vessels now being operated are requisitioned ex-German steamers with an aggregate tonnage of 77,746 tons. The net profits of the steamship service for the year 1919-1920 are estimated at about £220,000.

□ □ □

"Since the abolition of the Government's war-time subsidy it is reported that many of the inland canal systems of Great Britain are finding it impossible to pay their way," says Mr. Alex. M. Walker, Clerk to American Trade Commissioner, London, England. "With a view to effecting immediate increases in transportation charges, authority has been given the canal companies to raise their rates, but it is feared that any further increase in tolls sufficient to place the canals on a paying basis would be disastrous to the traffic on these waterways and would defeat the object in view."

"It is announced that the Sheffield & South Yorkshire Navigation Co. is closing its inland waterways immediately, owing to the difficulty of operating at a profit. These canals connect a wide and important industrial area in the neighborhood of Sheffield, including Rotherham, Doncaster, and Mexborough, which are linked directly with the Humber on the northeast coast; they also connect up indirectly the south Yorkshire manufacturing centres with the Midlands. The Sheffield & South York-

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shire Navigation Co. was originally incorporated in 1899 to acquire from the Manchester, Sheffield & Lincolnshire (now the Great Central) Railway Co. the properties of the River Don Navigation, the Dearne and Dove Canal, the Sheffield and Tinsley, and the Stainforth and Keadby Canals. Later, in 1905, the company completed the construction, jointly with the Aire & Calder Navigation Co., of a new canal from the River Don Navigation (near Bramforth Lock) to the Knottingly and Goole Canal (near Sykehouse Bridge), in which the company owns a 50 per cent. interest.

In this connection the Manchester Ship Canal Co. has announced that higher charges effective as from September 1 will be instituted on all traffic using the Ship Canal and the Bridgewater Navigation."



Outside Admiralty Regulations

Continued from page 13

"Jimmy stepped forward and saluted. 'I'm very sorry, sir,' he says. 'If I had studied his marks before I fired, I might have seen he was British.'

"The admiral twirled his cane, and presently smiled gravely. 'Well, I suppose it is only natural that you would feel bad if you thought you had killed some of your own people,' he says. 'That submarine would never have got home if she had been a German, but being British, and not having far to go, she got in all right. She was diving when you hit her, and though you knocked her conning tower clean off, you did not puncture her pressure hull, and nobody was hurt, though I think they were badly frightened.'

"'Hurray,' I shouts.

"The admiral waved his cane for silence. 'I wish to say to you, captain and all concerned,' he went on, 'that I am instructed to thank you, on behalf of the Admiralty, for the promptitude and good shooting displayed on the recent occasion when you encountered and put out of action His Majesty's newest and biggest submarine. I only regret that it is not possible for the Admiralty to show its recognition of your good work in any other way. It is quite

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outside the regulations, you know; no provision was ever made for such an occasion, either in the way of medals or prize money. I may add that no blame would have attached to this ship if all the crew of that submarine had been lost. It is your business to sink a submarine on sight if you can, any submarine not accompanied by an escort. Our destroyers take no chances with stray submarines, and more than one British submarine has been attacked by our own ships. If you see a submarine flying the British flag and with Rule Britannia painted on her hull, blaze away and sink her if you can. German submarines are sometimes disguised. If you sink one of our submarines, the blood is on the head of her crew."

□ □ □

The Story of the Trent Canal

Continued from page 21

miles broad at its widest part. It has an elevation of about 170 feet above Lake Huron, into which it discharges itself. On this lake are many beautiful summer homes, not only of wealthy Canadians, but of Americans from Buffalo, Cleveland and other United States cities. The lake has numerous wooded islands, some of them of large size. One of these, Snake Island, is inhabited by Indians.

The banks of the lake for the most part are clothed with typical Canadian woods, down to the water's edge. Steamers ply between Barrie, Orillia, Jackson's Point, Beaverton and other ports on the lake. Here also, the fishing is excellent, and the opportunities for excursions into lovely districts both by forest trails and water are seemingly endless.

Altogether, the Trent Canal, starting as it does from the vicinity of the Thousand Islands and running through highly picturesque country, alternating between prosperous towns and rugged wilds, and finishing up in Georgian Bay, offers one of the most charming water routes to be found anywhere on the continent. The fact that it can be reached either from East or West by the vessels of the Canada Steamship Lines gives the district an added attraction for summer visitors.

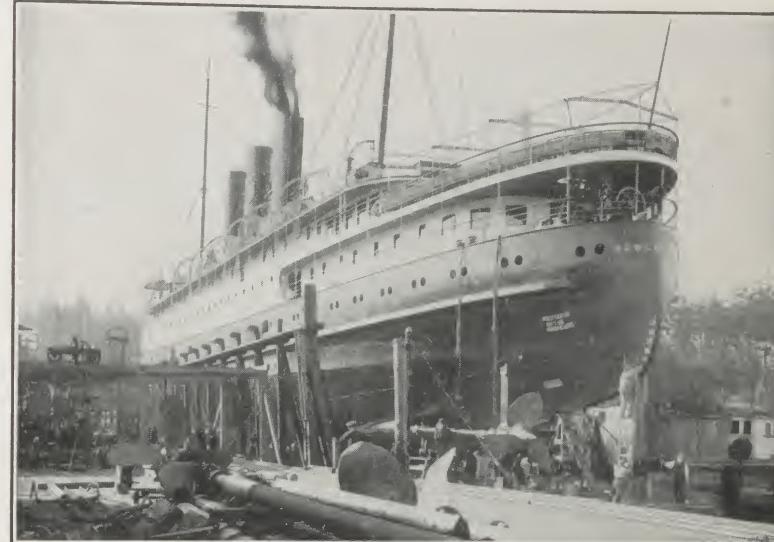
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The Story of a Little Evergreen Tree

Continued from page 19

her, and Little Tree had been brought for her special pleasure.

Their pleasure was so great at having a real Christmas tree of their own, that they decided to share it by inviting all the neighboring children in the following night for a grand festival.

The festival was as much like the previous one, in which Little Tree had taken part, as the light of an arc lamp is like that of the moon, but Little Tree enjoyed itself more here, for it was not only the reason of the festivities, but it had never dreamed it possible to give such pleasure, and it made the discovery that that was real happiness.

It continued to stand in that corner for a long time, and at last it knew it was really dying. And it wondered who would last the longest, the sickly child or itself, for she, too, was fading fast. Little Tree loved that child, and in the long days they were alone together it tried to whisper to her about all the beautiful things it had seen in its forest life, and how glad it was to be there to give her pleasure and keep her company.

She loved Little Tree, too; and when at last a day came when work was slack, and fuel gave out, and they decided that Little Tree must be chopped up and burnt, she cried pitifully.

They stripped off most of its branches, and Little Tree felt naked and ashamed, and very frightened. Then they laid it down, and chopped it in pieces, and that was terrible, and Little Tree lay very near death. Then they put the pieces in the fire, and Little Tree knew that this was the end, but even in its dying agony it was glad to know it was giving comfort to her who would so soon follow, and it realized that it had given more pleasure and been of more use in its short life than all the beautiful trees at home. And, after all, what more could a tree desire?

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Notes from the Canadian Capital

Continued from page 27

canker may well eat perilously near to the roots of the national credit. Some remedy must be found. One proposed is a complete reorganization of the directorate which, with the taking over of the Grand Trunk, will endeavor to mould the various lines into something like a compact system, eliminating the duplication of services and effecting economies wherever it is possible.

Probably we will have another year's trial to see how the new conditions, incidental to the Grand Trunk acquisition, work out. The Government was never enamored of public ownership. It went into it as an alternative to constant assistance by way of subsidies and loans. This course having been taken, no other is probable this year, but, if contemplated reforms are abortive, some reversion to private ownership is not improbable. State ownership may be all right in its way under certain conditions, but, if it threatens the fabric of national credit, no consideration, political or otherwise, will likely cause it to be continued.

□ □ □

Some Notable Canadian Railway Structures

Continued from page 10

could accommodate a maximum of but 100 trains per day—as they were required to travel at a low rate of speed, and one train could not follow another until the preceding one was out, thus losing a considerable amount of valuable time during the day—the present bridge has an almost unlimited capacity in this respect, as trains can be moved swiftly and follow each other in rapid succession, owing to the establishment of an elaborate and modern block system, which will permit two or three trains on the bridge in each direction at the same time. This enables this railway to handle to better advantage the ever increasing traffic to and through Montreal.

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The Launcelot of Fishes

Continued from page 32

lake trout fishing, you are in luck. Metal lines for this fishing can be had on the open market. They do away with the need of sinker; they sink of their own weight.

But it is at the fore-part of the season that the ouananiche is at his best. There is no other season to compare with it. They are then filled with a vim and sprightliness that will tickle the soul of any angler. It is then, too, that they are in the shallow water on the lookout for insect food, which, trout-like, they rise to. An eight-ounce bamboo fly-rod under these circumstances is an appliance that is perfectly fitting; indeed, some would like tackle even lighter than this rod affords, but for general work the eight-ounce rod should be recommended. Regulation salmon flies can be used; in fact, most of the flies brought into use when questing out this fish are of that type. Three flies can be used on a leader in preference to a single lead-fly in that three are more readily detected in the water. The flies should be played a foot or so below the surface, and this may be attained by biting on some split-shot to the leader. There are those who are averse to the use of a "shotted" leader, but it will be found the most practical way of getting the flies down to the desired depth.

The ouananiche first, last and all the time is a fighter. He is worthy of your best skill and will match you with a cunning and craftiness that is surprising. It has been said that "inch for inch and pound for pound" the black bass is the gamiest fish that swims. That may be true of some black bass, especially when they are captured in the cold waters of the north, but taken in warmed-out and nearly stagnant waters, as one will find in many of the States, the large-mouth black bass is about as gamey as a carp and about as attractive as the same fish when served on the table. We can compare the ouan-



aniche as a fighter with the small-mouth bass or the rainbow trout when taken in their native habitats. Both of these latter denizens of the pure waters leap time and again, and are not captured until they are netted and safely stowed away among the ferns in the boat. So also the ouananiche. As one writer has stated of this fish, it will "leap on a slack line, which is a tackle-testing manœuvre and the quintessence of gaminess. I know nothing that will thrill an angler like the leap of some bravely fighting fish, shaking the silvery drops of water from his iridescent body. The one count I have against the brook trout is that it does not leap on a slack line." By that the writer quoted means that other fish will not leap unless forced by reeling the line taut as a violin string. The ouananiche salmon leap of their own accord without any forcing and thus prove that they are in a class with the best.

Fishing for the ouananiche salmon is still in its infancy. Some few have touched on the life of the fish and have told how and where to go after him, but this information has been lost in the annals of sport in the midst of kindred topics. But for the man who wants something different, something that will thrill him through and through, something that is very nearly original—to such a person this fish holds out immense possibilities. And, too, you will find him in the wildest of settings, in the midst of what is practically a wilderness; in fact, the far north stretching into Labrador is entirely a wilderness. To handle even a two or four-pound ouananiche makes for a red-letter day in one's life; but to penetrate into the wilds and seek out the six and eight-pounders has a fascination and thrill in store for the modern disciple of Walton that will never be equalled. Quebec Province has some of the most wonderful fishing to be found in North America; native brook trout running up to ten pounds weight, and sea trout in vast numbers. Salmon of the sea run variety are there in profusion on famous rivers. But best of all is the ouananiche. Do not fail to look him up. You will never regret the experience!

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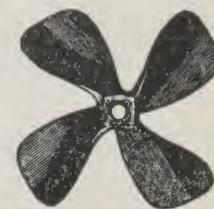
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Lord Strathcona and the Upbuilding of Canada

By Robert Page Lincoln

THE name of Donald Alexander Smith is linked irremovably with that of Canada. The history of this North Country is woefully incomplete without reference to this remarkable man whose career from the beginning to the end was one of such tremendous effort, coupled with suffering and privation, but which he faced with that native vim that laughed at failure and forever cried: "On and on!" It was this rugged spirit, this ever constant resourcefulness that held him firm on his feet to the grand old age of ninety-three years. He died in London, England, January 21st, 1914.

Canada's Grand Old Man as he was called came to the North Country from Scotland in the year 1838. The spirit of adventure, the desire of excitement and experience was born in his very blood. From youth it had been his dream to visit the untamed and unknown wilderness of Canada, and, actuated by this intense desire, he set foot on the northern shores in the year above mentioned. He was then but a lad, but his lack of years did not faze him; he was out for adventure and meant to have his fill of it. Upon arrival and looking around about him, it was inevitable that he should drift into the main post of the Hudson Bay Fur Company in Montreal. The Company was then flourishing at its height, with branches all through the great northland from the brink of the Arctics to Canada's southern boundary. Smith, though young, was employed by the Company and was immediately dispatched to a Company post on the bleak shores of Labrador. One can, by not such a

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great stretch of the imagination, bring himself to understand what all this meant to such a young fellow. Labrador was then an utterly unexplored region; the number of white men who had put their feet on those gigantic wastes were easily numbered on one's hands; yet into this uncompromising wilderness young Smith plunged to take up his life-long task of faithfully serving the Company which became his life's work. Here, in the wilds all of the strings of civilization were severed; there was but one mail a year; rarely did he glimpse a white face. His only companions were Indians, Eskimos, and sledge-dogs. Young Smith, however, did not hanker for civilization. It was all to his liking, and he set himself to the duty of fulfilling his orders with a zeal and perseverance that was to dominate his whole future. Here, the winters were nearly eight months long and often the thermometer fell to fifty degrees below zero. Summers with their brighter days were all too short. In his own words: "One could but turn around and winter was on us again."

In this manner he lived in the North for thirteen years, grim and determined, truly a hardy Scot. In this interval occurred one of the most surprising examples of human endurance found in the annals of the North. Out one day on the glaring snows, he was struck snow-blind, and, while this turned out to be but temporary, he feared that if he waited till spring to go to civilization for medical aid he would be stone blind. He determined to go across those utter wastes to Montreal. With sledges and two Indians as companions, he set out. Upon reaching Montreal, he obtained medical aid and as a result his eyesight was spared. Appearing at the Company's office, he stated to the (then) head of the Company, a George Simpson, that he wanted to quit. He explained what had brought him back; he added that he knew that he had

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quit without orders and had left no one in charge of his post for the simple reason that there were no white men in that country. Simpson, however, pleaded with him, and after many hours of this Smith decided to return to Labrador. *Remember that this was in the dead of winter and Labrador was two thousand miles away!*

The trip back to what he called his "home" is a record of unyielding determination. On and on, Smith, with his two Indian companions, made his way. They were baffled by storms and the intense cold; meat was hard to get hold of for the snow lay deep on those awful wastes. First, one Indian died of privation, then the second one succumbed, leaving Smith alone in the wilds of Labrador two hundred miles from his destination. In later years, Smith was wont to relate that awful story. It was all a nightmare to him. In his own words, he virtually crept on his hands and knees two hundred miles, finally reaching the far Labrador post to resume his labors in the interest of the Company.

Later, Smith was advanced to the position of chief trader, and his travels brought him westward to the shores of Hudson Bay itself. Here, the Company maintained one of its most powerful forts and trading depots, and here Smith remained another ten years. In 1861 he became chief factor, and in 1868 he was appointed head of the Hudson Bay Company, removing to Montreal. He had then spent thirty years in the wilderness of the North, most of the time without seeing a white face. He was nearly fifty years of age when he took up his duties as head of the great Company, and the real test of his worth came one year after the date of his acceptance

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of that position. That occurred when the question about transferring the Company's lands to the Government came up. The "wintering partners" (the men who kept the posts and traded throughout the North as he had done) were alarmed, believing that they were to be cheated and betrayed. Posts were abandoned and all made their way to Smith to settle the question. To them he stated that the Government must control the lands, and promised them all that they would have their just share in the money that the Company was to receive for these lands. This soothed the majority of the traders, but not all of them as history proves.

In the year 1869 the transfer of the Company's lands to the Government occurred. A commissioner sallied forth to take control of the Northwest and met face to face with the opposition. A half-breed by the name of Louis Riel was firmly established at Fort Garry, which is now the site of the present city of Winnipeg. He had surrounded himself with a considerable body of malcontents set upon fighting the Government in its land purchase to the bitter end. Into this place of hot blood and promised rebellion came Smith. He was the one man in the North who saved the West and Manitoba for Canada, but in doing so he spent two of the most aggravating and perilous months of his life. It is said that he never rolled up in his blanket to sleep at night that a gun was not pointing at his head with a murderous eye glancing along its length. That the many and various triggers were not pulled is another powerful argument for the strange control that Smith had over the wilderness men. He was probably hated intensely by some, but in proportion to the hatred expended on him he was feared and respected. As the result of his negotiations, the Riel rebellion flickered and died out.

On the heels of the Riel rebellion another rumor was floated, the substance of which was that the British

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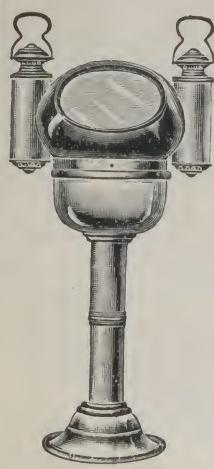
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stock-holders in the Company had made up their minds to appropriate the entire million and a half dollars the Company had obtained from the Government when the purchase was made. Indian runners carried the tidings from post to post, and the result was that a meeting was hastily called of fur-traders and factors at the famous Norway House. There was more intense feeling behind this singular gathering than behind that of Louis Riel and his rum-soaked non-descripts. War was on the point of being openly declared when Smith put in his appearance. He bade the factors and traders bide their time while he went to London in their interest to find out the truth of the assertion. His heart, of course, was with the "wintering partners." Their life in the wilds he knew, for he had suffered on those same trails when they were first broken.

Smith's plea in London in behalf of the traders was at first ignored, but when he stated that the future of the Company and even the Government depended upon their playing fair they were brought to their senses. As a result, Smith obtained for the traders the sum of \$535,000.

Donald Smith (later Lord Strathcona) reached the pinnacle of his achievement in the building of the Canadian Pacific railroad, but this is only one of the momentous works

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